Presentation of the ECRA Sampling Results for Hexcel Corporation Lodi, New Jersey

ECRA Case No. 86009

Volume I of II

Prepared for Hexcel Corporation

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I. INTRODUCTION

A. Background

On December 31, 1985, Hexcel Corporation ("Hexcel") entered into a Purchase Agreement in regard to its facility in Lodi, New Jersey. This action triggered the requirements of the Environmental Cleanup Responsibility Act (ECRA). In accordance with ECRA requirements, a General Information Submission (GIS), dated January 7, 1986 and a Site Evaluation Submission (SES) dated January 15, 1986, were submitted by Hexcel to the New Jersey Department of Environmental Protection (NJDEP). A Sampling Plan was subsequently prepared, submitted, revised, approved, supplemented, and then implemented by ENVIRON in July, August, and September 1988. Sampling and sampling procedures set forth herein, except where noted, were generally performed in accordance with the letter of Robert L. Powell dated September 12, 1988 to Mike Nalbone and the proposed Amended Sampling Plan dated February 4, 1988. A partial Sampling Results Report was forwarded to the NJDEP on November 23, 1988.

B. Purpose and Scope

This report presents the results of Phase I of the soil and ground water sampling program conducted at the Lodi facility (the "site") during July, August, and September 1988. Based on site history, the use of hazardous materials during the plant's normal operation, and four prior

site investigations 15 areas of environmental concern (AECs) were identified. The sampling program was designed to determine whether soil or ground water contamination exists in any of the 15 AECs. AECs were identified using a combination of prior site investigations and historical information concerning site usage. A list of these AECs, with a short description of each, is presented in Table I-2. The location of each AEC is shown on Plate 1. The Amended Sampling Plan, dated February 4, 1988, proposed to collect soil samples from 46 soil borings, ground water samples from 18 monitoring wells, and 3 wall wipe samples.

Collected samples were analyzed for a variety of chemical constituents as described in Section II of this report. The analytical testing results were used to determine whether soil and/or ground water contamination exists. AECs for which analytical results indicate an absence of contamination will be removed from further sampling and cleanup consideration and no further sampling will be conducted. In AECs where contamination has been detected, additional sampling may be recommended to further delineate its horizontal and vertical extent, so that an appropriate cleanup plan can be developed.

[&]quot;Contamination" by a particular substance is defined for this study as concentrations that exceed current ECRA action levels established by NJDEP for soil and ground water (Table I-1). Although these informal action levels are being used to simplify this presentation of the sampling results, neither ENVIRON nor Hexcel is suggesting that the action levels are a proper or appropriate basis for a site cleanup. For example, it may ultimately prove more appropriate to use a health and environmental risk analysis to determine appropriate cleanup levels.

TABLE I-1
Informal ECRA Action Levels

Parameter	Soils (ppm) ¹	Ground Water (ppb)
TPHC	100	1,000
BN	10	case-by-case
AE	case-by-case	50
VOC	1	case-by-case
Total Cyanides	12	200
Phenols	case-by-case	3,500
PCBs	1-5	0.001
Pesticides	case-by-case	case-by-case
Metals		
Antimony Arsenic Beryllium Cadmium	2 20 1 3	NPAL ³ 50 NPAL 10
Chromium Copper Lead Mercury	100 170 250-1000 1	50 1000 50 2
Nickel Selenium Silver Thallium	100 4 5 5	NPAL 10 50 NPAL
Zinc	350	5000

¹ ppm = parts per million

Note: Actions levels are taken from an in-house memorandum distributed by ISEE personnel and not established in any administrative code.

ppb = parts per billion

NPAL = No Proposed Action Level

TABLE I-2

Areas of Environmental Concern

Area Environmental Concern	Description
1	Two underground tanks (no identification numbers), two aboveground tanks (Tanks 1, 2)
2	Aboveground tank farm (Tanks 13 through 18, Q, R, S)
3	Aboveground tank farm (Tanks 3 through 7)
4	Aboveground tank (Tank 8)
5	Four aboveground tanks (Tanks 9 through 12)
6	Aboveground tank farm (Tanks 21 through 25)
7	Underground gasoline tank (no identification number) and two aboveground tanks (Tanks 26, 27)
8	Empty drum storage area west of Building 1
9	Raw material drum storage area west of Building 12
10	Empty drum storage area south of Building 2
11	Product drum storage area east of Building 2
12	Pit along southern half of Building 1
13	Loading platform along the western side of Building 1
14	Catch basin west of Building 1
15	Area within and beneath boiler room

Note: Tanks No. 19 and 20 do not exist on-site at this time.

Section II of this report describes the field methodologies used to implement the Sampling Plan, as well as any deviations from the approved plan. Section III describes the results of the sampling program, including the site-specific geology and hydrogeology and analytical results for the soil, ground water, and wall wipe samples. Section IV discusses the analytical results, and Section V provides a summary of results and further activities at this site.

II. METHODOLOGY

A. Sample Collection

The sample collection techniques used were those proposed in the Amended Sampling Plan dated February 4, 1988, except when field conditions necessitated changes. Deviations from the approved collection techniques are described below. Appendix A lists the actual sample locations, as well as analytical parameters and methods. The sample locations are also illustrated on a site map (Plate 2). All monitoring well elevations were surveyed by Albert Feroldi Surveyors of Secaucus, New Jersey. Monitoring well logs and well construction specifications are presented in Appendix B.

1. Soil Sampling

Most soil samples were collected in the proposed manner and at the locations and depths outlined in the Sampling Plan. J.E. Fritts and Associates, Inc. of Voorhees, New Jersey, was retained to collect soil samples using hollow stem augers and split-spoon samplers. Following sample collection, all borings were sealed using cement grout. To delineate the horizontal and vertical extent of contamination and to reduce the volume of contaminated samples sent to the laboratory, the Sampling Plan proposed to field screen samples designated for VOC analysis.

Screening samples were collected when possible from below each interval being sampled for VOCs, sealed in a 500 ml glass jar, and transferred to an indoor work area. Samples were placed in a

circulating water bath at 32°C for 30 minutes, with the cap replaced by aluminum foil. After 30 minutes, the probe from a photoionization detector was inserted through the foil. The peak and average concentrations were then recorded. The observed concentration determined whether samples would be sent for outside laboratory analysis.

Screening samples from locations where no significant VOC contamination was detected were sent to the laboratory to confirm the absence of contamination. Several screening samples that displayed apparent elevated levels of contamination were also sent to the laboratory to determine if a correlation could be developed between the concentrations observed during screening and the actual analytical results.

Field conditions necessitated several deviations from the proposed Sampling Plan which are described below.

- At several locations the thickness of asphalt and crushed stone extended to a depth of one foot. Therefore, shallow soil samples proposed for 0.5- to 1.0-feet were collected from 1.0 to 1.5 feet.
- The presence of overhead power lines prevented collection of soil samples from sample location 101. The proximity to the boiler room of the underground tank and associated plumbing and the presence of aboveground tank No. 1 made it impossible to move boring 101 to an alternate location.

- The soil samples from above the water table proposed for sample locations 1301 and 1303 were not collected. Both sample locations were beneath the loading dock on the west side of Building No. 1. Due to the limited access, samples were collected using a hand auger. The nature of the soil below the loading dock (fill, concrete and brick) restricted the depth to which those borings could be hand augered.
- The hollow stem auger and split-spoon soil samples proposed for sample location 1506 were collected using a hand auger because of the proximity of overhead power lines.
- The oil samples (1201, 1202) proposed for the steam tunnel were not collected due to the absence of oil in the tunnel.

2. Ground Water Sampling

a) Monitoring Well Installation and Construction

Seventeen monitoring wells, nine shallow and eight deep, were installed as part of the ground water sampling program.

All monitoring wells were installed by J.E. Fritts and

Associates, Inc., a New Jersey licensed well driller. The

locations of the shallow and deep monitoring wells are shown on

Plate 2, and the well logs are presented in Appendix B. The

wells were installed pursuant to the procedures set forth in the

NJDEP Draft Sampling Plan Guide. Proposed shallow monitoring

well MW17 was deleted from the sampling program because of its proximity to overhead power lines and a surface mounted transformer. Mr. Kevin Berkheimer, an inspector for Public Service Electric & Gas, advised that the high voltage lines and the adjacent transformer were too close to the proposed well location to ensure proper safety when operating a drill rig. The alternative locations for this well placed it within several feet of either MW2 or MW16 and therefore would not have produced any useful additional data.

The shallow wells were installed with hollow stem augers and constructed with between 5 and 11 feet of No. 10 slot 4-inch PVC screen and enough riser to extend at least three feet above ground surface. The screened interval extended from the top of the silty clay confining layer that extends across the facility to a depth of approximately 2 feet above the water table. For the shallow wells constructed as part of shallow/deep clusters, the borehole was drilled to approximately one foot above the confining layer, as determined during deep well installation. A two-foot split-spoon sample was subsequently collected to confirm the depth of the confining layer. The borehole was then extended to that depth. When shallow wells were not installed as shallow/deep clusters, split-spoon sampling was conducted to determine the depth of the confining layer. The total depth of the shallow wells ranges between 7 and 15 feet below ground surface.

A saturated layer approximately one foot thick, perched five feet above the shallow aquifer, was encountered during the installation of shallow well MW6. To prevent the flow of perched water into the shallow aquifer, an 8-inch steel outer casing was grouted in place to a depth of three feet. MW6 was drilled inside the steel casing with a rotary bit and water. The well was then constructed in the same manner as the other shallow wells.

The deep well outer casings were installed either by drilling with mud rotary 1.5 feet into the confining layer and grouting the 8-inch steel outer casing in place, or by driving the outer casing 1.5 feet into the confining layer.

Construction of the deep wells was then completed by drilling with mud rotary through the confining layer and into the underlying sand and gravel zone. Although mud rotary was not the recommended method for constructing the deep wells, an open borehole could not be maintained in the unconsolidated sediment in which the wells could be constructed.

The deep wells, which were installed before the shallow wells, were continuously split-spoon sampled. All deep wells except MWll were constructed using five feet of No. 10 slot 4-inch PVC screen and the necessary riser to extend approximately three feet above ground surface.

Deep well MWll was constructed using 10 feet of No. 10
4-inch PVC screen and the appropriate amount of PVC riser. Deep

well MWll was the first well constructed in the sand and gravel formation below the confining bed. It was bored 10 feet into the permeable zone to insure sufficient yield for sampling.

Once developed, the sand and gravel zone was determined capable of yielding sufficient water for sampling using 5-foot screen.

The remainder of the wells were therefore constructed with 5-foot screen. The depths of the deep wells ranged between 20 and 30 feet below ground surface.

b) Monitoring Well Development

J.E. Fritts and Associates developed the deep monitoring wells using a submersible pump. Each deep well was pumped until it produced water free of sediments. ENVIRON developed the shallow wells using a PVC bailer. Each shallow well was bailed dry several times, removing the majority of the sediments present. Development water was discharged either to paved surfaces where surface runoff flows into the industrial sewer, or directly into the sewer.

In the wells where potential PCB contamination existed, the development water was discharged to the facility's filtering system, presently being used to filter PCBs from water accumulating in the sump area of Building 1. Following laboratory confirmation of the removal of PCBs, this water is discharged into the industrial sewer. The Passaic Valley Sewer Authority is cognizant of this discharge.

c) Monitoring Well Sampling

All monitoring wells were purged and sampled by National Environmental Testing, Inc. of Thorofare, New Jersey. Prior to sampling, each well was purged of at least three well volumes of water. The deep wells were purged with a bottom-loading PVC bailer; the shallow wells were purged with an Isco peristaltic pump. Purge water was disposed of in the same manner as development water, as discussed above. Sampling was conducted one week following development.

All ground water samples were collected within two hours of purging, using one-liter, bottom-loading teflon bailers. Each dedicated bailer was precleaned and foil wrapped in the laboratory. New nylon rope was used each time a well was sampled. Two bailers of water were collected and disposed of prior to collection. Samples were collected by gently lowering the bailer down the well until it was completely submerged.

Samples were collected from the bailer in laboratory-supplied bottles, placed on ice in a cooler, and transported to the laboratory following the completion of sampling.

During the development and purging of monitoring well MW6, evidence of dense non-aqueous phase liquids was observed. An additional ground water sample was therefore collected from the bottom of this well.

3. Wall Wipe Samples

Three wall wipe samples were collected as proposed from the sump area inside Building No 1. Each wipe sample location was biased to areas where oil had seeped through the sump wall. At each sample location, an area 25 cm wide and 25 cm long was marked off. A sterile, wrapped gauze pad (3" x 3") was then soaked with approximately 20 ml of hexane. The gauze pad was used to wipe the marked area first in a horizontal direction, then in a vertical direction. The pad was then placed in a sample bottle and sent to the lab for PCB analysis. A new pair of latex gloves was used for each wipe sample.

B. Quality Assurance/Quality Control

1. Decontamination Procedures

During the installation of each monitoring well and on collection of each soil sample, the hollow stem augers and split-spoon samplers were decontaminated by steam cleaning with potable water. Laboratory-cleaned bottles were used for each soil and ground water sample. Fresh latex or nitrile gloves were worn each time a sample was collected.

2. Wash Blanks, Trip Blanks, and Duplicate Samples

To ensure the effectiveness of decontamination procedures, a wash blank was collected each day soil samples were collected, and

analyzed for the same parameters as the soil samples: TPHCs, PCBs, and VOCs. One wash blank was collected in association with ground water sampling and analyzed for TPHCs and PP+40. An additional wash blank associated with the wipe samples was analyzed for PCBs.

To monitor sample handling, transport and storage, one trip blank accompanied samples collected each day during transport and laboratory storage. These trip blanks were analyzed for VOCs.

To monitor reproducibility and ensure quality control, nine duplicate soil samples were collected and analyzed for a combination of TPHCs, PCBs, VOCs, and Pb. One duplicate ground water sample was collected and analyzed for TPHCs and PP+40.

C. Laboratory Analysis

The laboratory analyses were conducted as proposed by NANCO Laboratories of Wappingers Falls, New York (NJDEP Certification #NJ-73460). Analytical methods were those described in Table I-3.

TABLE I-3
Analytical Methods

	EPA Method	
Parameter	Water	Soil
Acid Extractables	625	SW846:8270
Base/Neutral Extractables	625	SW846:8270
PCBs, Pesticides	608	SW846:8080
Volatile Organic Compounds	624	SW846:8240
Total Petroleum Hydrocarbons	418.1	418.1
Cyanide	335.1	SW846:9010
Phenols	420.1	420.1
Priority Pollutant Metals		
Antimony Arsenic Beryllium Cadmium Chromium Copper Lead Mercury Nickel Selenium Silver Thallium Zinc	204.1 206.2 210.1 213.1 218.1 220.1 239.1 245.1 249.1 270.2 272.1 279.1 289.1	7047 7060 7090 7130 7190 7210 7420 7470 7520 7740 7760 7840 7950
Bromide	320.1	405

III. RESULTS

A. Site Geology

The Fine Organics facility is located in Lodi, Bergen County,

New Jersey. The site, situated in the Piedmont Physiographic Province of

New Jersey, is shown on Figure 1, U.S.G.S. Topographic Quadrangle,

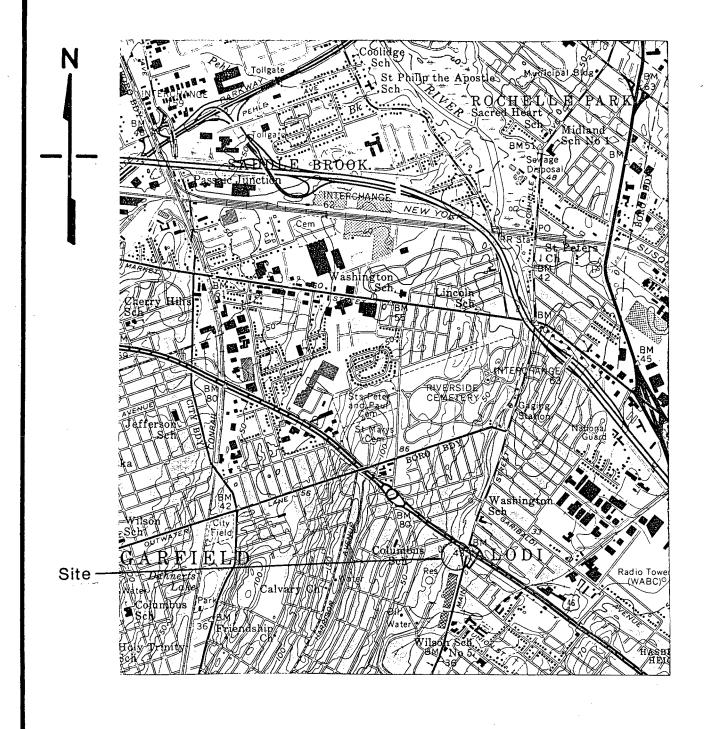
Hackensack, New Jersey. Saddle Brook flows along the western border of

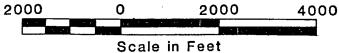
the property. The naturally occurring sediments underlying the site are

glacial alluvial in origin. Overlying those sediments is a layer of sand
and gravel fill.

The fill layer that directly underlies the site is heterogeneous in nature. Although primarily sand, varying amounts of gravel silt and assorted construction debris are present. This layer ranges in thickness from 5 to 12 feet. Underlying the fill is a naturally deposited sand and gravel layer. This layer occasionally displays graded bedding, but is generally poorly sorted with gravel up to 1.0 cm in diameter. This sand and gravel layer ranges in thickness from 1 to 5 feet.

Below the sand and gravel lies a layer of silty clay. The amount of silt varies vertically and horizontally, and occurs in thin lenses. The thickness of the clay ranges from 1.5 to 15 feet and extends laterally across the entire site. Underlying the silty clay is a second layer of sand and gravel that occasionally displays graded bedding. When the zone is graded, the sand is silty at the top and grades into gravel up to 2 cm in diameter at the greatest depth reached during installation of the deep wells. This very permeable zone of sand and gravel varies in thickness from 5 to 10 feet.





Source: USGS Topographic Series, Hackensack, N.J. Quadrangle 1955, Photorevised 1981.

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Counsel in Health and Environmental Science

SITE LOCATION MAP
Hexcel Corporation
Lodi, New Jersey

Figure 1

To better define the subsurface at the site, four cross-sections have been constructed using information collected during installation of the shallow and deep monitoring wells. Plate 3 locates each cross-section relative to the site, and Plate 4 illustrates the subsurface. The cross-sections exhibit what may be an abandoned river channel trending northwest to southeast, that appears to have been filled with overbank deposits (clay and silt) following episodes of flooding. Plate 5 displays a geologic fence diagram of the site.

B. Site Hydrogeology

The fill and shallow sand and gravel layers directly underlying the site constitute the shallow aquifer. Ground water is present in this aquifer at depths of 4 to 8 feet below ground surface. Plate 6 is a site map illustrating the potentiometric surface for the shallow ground water below the site. This surface was constructed using both ground water elevations measured in the shallow monitoring wells and a finite element interpolation ground water flow model.

In general, the direction of ground water flow in the shallow aquifer is west toward Saddle Brook. However, in the areas south of Building 11, the loading dock behind Building 1, and west of Building 1 (AEC 1), ground water flow is to the south. This variation in flow direction is explained by a decline in ground water elevation in the direction of Molnar Road. This sink may be the result of a leaky storm drain beneath Molnar Road, which may be lowering the water level in the shallow aquifer and causing a localized change in flow direction.

Ground water is also present under apparently confined and/or semi-confined conditions in the deeper sand and gravel underlying the silty clay confining bed. Although ground water elevations indicate that there is a downward gradient from the shallow aquifer to the lower aquifer over much of the site, there is an upward gradient from this deep aquifer to the clayey layer along the River which may cause some leakance into the confining layer and stream bed. The ground water elevation in this formation ranges from 6 to 8 feet below ground surface. Plate 7 is a site map illustrating the potentiometric surface for the deeper aquifer. This surface was constructed from ground water elevations measured in the deep monitoring wells, and a finite element interpolation ground water flow model.

C. Analytical Results

1. Overview

This section describes the analytical results for soil, ground water, and wall wipe samples collected across the site during July, August, and September 1988. Analytical results for soil samples are supplemented with results from the HNu field screening of samples designated for VOC analysis. Also included in this section are the results for quality assurance/quality control (QA/QC) samples.

The results presentation is organized by AEC for soil and wall wipe samples and by analytical parameter for ground water samples.

To facilitate interpretation, in general only the samples with

compounds detected above the informal ECRA action levels are described. Samples which were not sent to the laboratory for analysis, due to significant concentrations being observed during HNu field screening, are assumed to be above the informal ECRA action level for VOCs. This assumption is based on ENVIRON's expectation of a correlation exiting between HNu readings and total VOC contamination. If statistical analysis of the data determines this assumption to be incorrect a reevaluation of the meaning of the HNu screening results will be required.

For those constituents for which the informal ECRA action level is determined on a case-by-case basis, reporting of concentrations will be referred to as being significant or not significant based on comparison with previously established informal ECRA action levels. For the compounds for which no informal ECRA action levels have been established, only detectable concentrations will be reported for discussion purposes.

All samples for which laboratory analyses were provided are presented in Volume II. Samples which only underwent HNu screening are presented in Table II-4 of Volume II.

2. Summaries of Soil Results for Each AEC

a) AEC 1

Seven soil borings were drilled outside and two soil borings were drilled inside AEC 1, the location of two abandoned

underground and two aboveground fuel tanks. Boring 101 was not drilled due to reasons discussed in the Methodology section (page 7). Soil samples were collected from the borings to determine the extent of contamination caused by leaks from the underground fuel tanks and from the hot oil system located in the Boiler Room. Samples were analyzed for VOCs, TPHCs and/or PCBs, depending on location and depth. Saturated soil conditions were encountered at 5 feet. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3, 4, 5, 8, and 9 of Volume II.

Analytical and HNu screening results are also summarized on Plates 8, 9, 10, and 11.

VOCs were detected above the informal ECRA action level by laboratory analysis in soil borings 102 (6.0-6.5 ft.), 104 (5.5-6.0 and 6.0-6.5 ft.), 105 (1.5-2.0 ft.), 107 (6.0-6.5 ft.), and 108 (6.0-6.5 ft.). VOCs were detected by HNu screening and not analyzed by the laboratory in soil borings 102 (1.5-2.0 ft.), 103 (4.5-5.0 and 5.5-6.0 ft.), 104 (1.5-2.0 ft.), 105 (4.0-4.5 and 6.5-7.0 ft.), 106 (4.0-4.5 ft. and 6.0-6.5 ft.), 107 (4.0-4.5 ft.), 108 (4.0-4.5 ft.), and 110 (1.5-2.0, 5.0-5.5 and 7.0-7.5 ft.).

TPHCs were detected at concentrations above the informal ECRA action level in soil borings 102 (6.0-6.5 ft.), 104 (5.5-6.0 and 6.0-6.5 ft.), 105 (0.5-1.0, 4.0-4.5 and 6.5-7.0 ft.), 106 (0.5-1.0, 4.0-4.5, 6.0-6.5 and 6.5-7.0 ft.), 107

(4.0-4.5 and 6.0-6.5 ft.), 108 (4.0-4.5 and 6.0-6.5 ft.) and 110 (0.5-1.0, 5.0-5.5, 7.0-7.5 and 8.0-8.5 ft.).

PCBs were not detected above the informal ECRA action level in any soil sample from AEC 1.

b) AEC 2

AEC 2 is the tank farm that includes tanks 13-18 and Q, R, and S. One soil boring (201) was drilled and three soil samples were collected from that location. Saturated conditions were encountered at 5 feet. The surface sample was analyzed for TPHCs and those at depth were analyzed for VOCs. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3, 4, and 5 of Volume II.

Analytical and HNu screening results are also summarized on Plates 8, 9, and 10.

VOCs were detected above the informal ECRA action level at sample location 201 (4.5-5.0 ft.). They were also detected by HNu screening at a depth of 1.5-2.0 ft. at the same location.

TPHCs were detected above the informal ECRA action level at sample location 201 (0.5-1.0 ft.).

c) AEC 3

AEC 3 is the tank farm which includes tanks 3-7. Three soil borings were drilled here. Samples were analyzed for TPHCs at the surface (0.5-1.0 ft) and for VOCs at depth. Saturated soil

was encountered at a depth of 6.5 feet. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3, 4, and 5 of Volume II.

Analytical and HNu screening results are also summarized on Plates 8, 9, and 10.

VOCs were detected in AEC 3 above the informal ECRA action level. Samples exceeding the action level were collected from sample locations 302 (1.5-2.0 and 6.0-6.5 ft.) and 303 (5.5-6.0 ft.). HNu screening detected VOCs at sample locations 301 (1.5-2.0 and 6.0-6.5 ft.) and 303 (1.5-2.0 ft. and 5.5-6.0 ft.).

TPHCs were detected above the informal ECRA action level at the surface (0.5-1.0 ft.) at sample locations 301, 302, and 303.

d) AEC 4

AEC 4 surrounds tank 8. One soil boring was drilled in this AEC. Saturated soil conditions were encountered at 5.5 feet. Soil samples were analyzed for VOCs and/or TPHCs. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3, 4, and 5 of Volume II.

Analytical and HNu screening results are also summarized on Plates 9 and 10.

VOCs were detected above the informal ECRA action level in one soil sample from 401 (5.0-5.5 ft.).

TPHCs were detected above the informal ECRA action level in soil boring 401 (0.5-1.0 and 5.0-5.5 ft.).

e) AEC 5

AEC 5 is the location of four above ground tanks (9-12). Four soil borings were drilled in AEC 5. Saturated soil conditions were encountered at 5 feet. Soil samples were collected and analyzed for TPHCs and lead (0.5-1.0 ft.), and VOCs and lead (4.5-5.0 ft.). The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3, 4, 5, and 8 of Volume II. Analytical and HNu screening results are also summarized on Plates 8, 9, 10, and 12.

VOCs were detected above the informal ECRA action level in 501 (4.5-5.0 ft.) the one soil sample that underwent laboratory analysis for VOCs. VOCs were detected by HNu screening at sample locations 501 (1.5-2.0 ft.), 502, 503, and 504 all at intervals of 1.5-2.0 and 4.5-5.0 ft.

TPHCs were detected above the informal ECRA action level in boring 501, 502 and 504 (all at 0.5-1.0 ft.).

No soil sample contained lead at concentrations above the informal ECRA action level.

f) AEC 6

The area surrounding aboveground tanks 21-25 is AEC 6. One soil boring (601) was drilled in AEC 6. Saturated soil conditions were encountered at 6 feet. Three soil samples were collected at 0.5-1.0, 1.5-2.0 and 5.5-6.0 ft. and were analyzed for TPHC, PP+40 and bromide, and VOC and bromide, respectively.

The interval of sampling from each boring and the specific analyses performed are summarized in Tables II-3-9 of Volume II. Analytical and HNu screening results are also summarized on Plates 8-12.

VOCs were detected above the informal ECRA action level at soil location 601 (1.5-2.0 and 5.5-6.0 ft.).

TPHCs were detected above the informal ECRA action level at soil location 601 (0.5-1.0 ft.). No AE/BNs, Pest/PCBs, bromide, or Priority Pollutant Metals (PPMs) were detected above the informal ECRA action levels in boring 601.

g) AEC 7

AEC 7 is the area surrounding two aboveground tanks (26 and 27) and an underground gasoline tank. Eight soil borings were drilled in and around AECs 7 and three were analyzed for a combination of VOCs, TPHCs, PCBs and lead (701-703). The remaining five underwent HNu field screening. Saturated soil was encountered at 6 feet. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3, 4, 5, 8, and 9 of Volume II. Analytical and HNu screening results are also summarized on Plates 8-11.

VOCs were detected above the informal ECRA action level in borings 702 (6.0-6.5 ft.) and 703 (1.5-2.0 ft.). VOCs were detected by HNu screening at borings 702 (1.5-2.0 and 11.0-11.5 ft.), 703 (1.5-2.0 and 6.0-6.5 ft.), 704 (13.0-13.5 ft.), 705

(13.0-13.5 ft.), 706 (13.0-13.5 ft.) and 708 (13.0-13.5 ft.).

TPHCs were detected above the informal ECRA action level in the borings 702 (1.0-1.5 and 6.0-6.5 ft.) and 703 (1.0-1.5, 1.5-2.0 and 6.0-6.5 ft.).

PCBs and lead were not detected above the respective informal ECRA action levels.

h) <u>AEC 8</u>

AEC 8 is an empty drum storage area. One soil boring (801) was drilled in the area and soil samples were analyzed for TPHCs (1.0-1.5 ft.), PP+40 (1.5-2.0 ft.), and VOCs (4.0-4.5 ft.). Saturated soil conditions were encountered at 4.5 feet. The interval of sampling from each boring and the specific ananlysis performed are summarized in Tables II-3-9 of Volume II.

Analytical and HNu screening results are also summarized on Plates 8-10 and 12.

Soil samples from location 801 (1.5-2.0 and 4.0-4.5 ft.) were in excess of the informal ECRA action level for VOCs. VOCs were detected by HNu screening in sample 801 (4.0-4.5 ft.).

TPHCs were detected above the informal ECRA action level at 1.0-1.5 ft.

Soil sample 801 (1.5-2.0 ft.) exceeds the informal ECRA action level for the metals antimony and beryllium.

The informal ECRA action levels for AE/BNs, Pesticides and PCBs were not exceeded in any soil samples collected from AEC 8.

i) AEC 9

Four soil borings were drilled in AEC 9, the raw material drum storage area west of Building 12. Soil samples were analyzed from three borings (901-903) for TPHCs, VOCs and/or PP+40. Soil samples from boring 904 were subjected to HNu screening only. Saturated soil conditions were encountered at 6.5 ft. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3-9 of Volume II. Analytical and HNu screening results are also summarized on Plates 8-12.

VOCs were detected above the informal ECRA action level in boring 901 (1.5-2.0 ft.) and 903 (6.0-6.5 ft.). VOCs were also detected by HNu screening in borings 901 (1.5-2.0 and 5.0-5.5 ft.), 902 (1.5-2.0 ft.), 903 (1.5-2.0 ft.) and 904 (1.5-2.0 and 6.0-6.5 ft.).

TPHCs were detected in soil boring 901 (0.5-1.0 ft.) in excess of the informal ECRA action level.

The informal ECRA action levels for PPMs, AE/BNs, Pesticides and PCBs were not exceeded in the soil sample analysis from location 901 (1.5-2.0 ft.).

j) AEC 10

AEC 10 is the empty drum storage area south of Building 2. Two soil borings were drilled and sampled. Saturated soil was

encountered at 6.0 ft. Soil samples were analyzed for either VOCs or TPHCs. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3-5 of Volume II. Analytical and HNu screening results are also summarized on Plates 8-10.

TPHCs were detected slightly above the informal ECRA action level in both the shallow (0.5-1.0 ft.) and deep (5.5-6.0 ft.) samples for boring 1002 at concentrations of 410 and 116 mg/kg respectively. TPHCs were below the informal ECRA action level in boring 1001.

VOCs were not detected at concentrations above the informal ECRA action level in samples collected from AEC 10.

k) AEC 11

Three soil borings were drilled in AEC 11, the product drum storage area east of Building 2. Samples were collected and analyzed for VOCs, TPHCs, and/or PP+40. Saturated conditions were encountered at 6.5 ft. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3-9 of Volume II. Analytical and HNu screening results are also summarized on Plates 8-12.

All compounds were detected below the informal ECRA action levels with the exception of antimony which slightly exceeded the action level of 2 mg/kg.

1) AEC 12

AEC 12 is the poured concrete, below grade sump area in the southern half of Building 1. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3 and 9 of Volume II. Analytical and HNu screening results are also summarized on Plate 11. Three wipe samples were collected from the walls of the sump and analyzed for PCBs. No PCBs were detected in any. Two samples (1201, 1202) which were proposed for the steam tunnel were not collected due to reasons stated in the Methodology section (page 8).

m) <u>AEC 13</u>

AEC 13 is the area below the loading platform along the western side of Building 1. Two hand auger borings were drilled below the platform (1301, 1303) and one soil boring (1302) was drilled adjacent to it. Saturated conditions were encountered at 4 ft. Soil samples were collected from 1302 and 1303 and analyzed for VOCs, TPHCs, and/or PCBs. Soil samples from boring 1301 underwent HNu field screening only. The interval of sampling from each boring and the specific analyses performed are summarized in Tables II-3, 4, 5 and 9 of Volume II.

Analytical and HNu screening results are also summarized on Plates 8-11.

Although VOCS were detected during HNu field screening no VOCs were detected above the informal ECRA action level in

laboratory tested samples.

TPHCs were detected above the informal ECRA action level in samples 1302 (1.0-1.5, 3.5-4.0 and 5.0-5.5 ft.) and 1303 (0.5-1.0 ft.). No PCBs were detected in AEC 13.

n) AEC 14

One soil boring was drilled adjacent to the catch basin west of Building 1 which is AEC 14. Soil samples were collected to a depth of 4.5 ft. where soil was saturated and were analyzed for VOCs, TPHCs, and/or PCBs. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3, 4, 5 and 9 of Volume II. Analytical and HNu screening results are also summarized on Plates 8-11.

TPHCs were detected above the informal ECRA action levels at boring 1401 at 1.0-1.5 ft. (816 mg/kg), and 4.0-4.5 ft. (106 mg/kg). The latter is only slightly above the informal ECRA action level of 100 mg/kg.

VOCs and PCBs were not detected above the informal ECRA action levels in AEC 14.

o) <u>AEC 15</u>

AEC 15 is the area within surrounding and beneath the boiler room. One soil boring (1506) was drilled to a depth of 8.5 ft. and four soil samples were collected. Boring 1501-1505 were drilled, sampled and results were presented by ENVIRON to the

NJDEP on September 3, 1987. Saturated soil conditions were encountered at a depth of 5 ft. The samples were analyzed for VOCs, TPHCs, and PCBs. The interval of sampling from each boring and the specific analysis performed are summarized in Tables II-3-5 and 9 of Volume II. Analytical and HNu screening results are also summarized on Plates 8-11.

TPHCs were detected at a concentration (120 mg/kg) slightly above the informal ECRA action level in sample 1506 (0.5-1.0 ft.) and PCBs (31 mg/kg) were detected in excess of the action level at a depth of 8.0-8.5 ft.

VOCs were not detected in soil above the informal ECRA action level.

3. Summary of Ground Water Results for Analytical Parameters

a) General

Seventeen monitoring wells (9 shallow, 8 deep) were sampled as part of the ground water sampling plan. Monitoring Well MW17 was not installed as proposed due to reasons discussed in the Methodology section (page 8). Six shallow (MW6, MW8, MW10, MW12, MW14, MW16) and 6 deep wells (MW1, MW7, MW9, MW11, MW13, MW15) were sampled and analyzed for PP+40 and TPHCs. Two shallow (MW2, MW18) and one deep well (MW3) were sampled and analyzed for VOCs, TPHCs, PCBs and PPMs. The remaining shallow (MW4) and deep well (MW5) samples were analyzed for VOCs and

TPHCs. Results for ground water samples collected and analyzed from deep and shallow wells are summarized in Table II-2, 4-9 of Volume II. Results are plotted on Plates 13-17.

The most frequently detected contaminants in the shallow wells were VOCs which varied in concentration from not detected to 165,600 ug/1. The principal VOCs detected were chlorobenzene, trans-1,2-dichloroethene, and tetrachloroethene. The most frequently detected contaminants in the deep wells were also VOCs which varied in concentration from 15 to 6,488 ug/1. The principal VOCs detected were chlorobenzene, trans-1,2-di-chloroethene and trichloroethene. Although there was previously an informal action level of 10 ug/1 for total VOCs, it is our understandaing that the NJDEP now determines the action level on a case-by-case basis.

TPHCs, AEs, BNs, and PCBs were detected at levels above the informal ECRA action levels in the shallow wells but not in the deep wells. However, the extent and degree of the contaminants is relatively insignificant compared with VOCs. Nonetheless, they are discussed below.

b) VOCs

VOCs were detected at significant concentrations in seven of the nine shallow monitoring wells. In monitoring well MW12, VOCs were detected at a level that was not significant and no VOCs were detected in MW14.

While the highest concentration of VOCs was detected in MW6, MW8 and MW4 also displayed significantly high concentrations. In addition to the ground water sample collected from the surface of the well (MW06-GW01), a sample was collected from the bottom of MW6 (MW06-GWDP) when a dense phase was observed in that well during the development and purging. That sample contained VOCs at a concentration three orders of magnitude higher than the ground water sample collected from MW6 using standard NJDEP protocols.

The analytical results for VOCs in the shallow wells are summarized on Plate 13 and Tables II-2 and 4 of Volume II.

VOCs were detected in all eight deep monitoring wells. The highest concentration was detected in MWl and the lowest in MWl5, where the concentration slightly exceeds the former informal ECRA action level. The analytical results for VOCs in the deep wells are summarized on Plate 14 and Tables II-2 and 4 of Volume II.

c) TPHC

Of the seventeen wells sampled only two shallow wells, MW4 and MW8, contained TPHC contamination (88.6 and 2.3 mg/l respectively) above the informal ECRA action level. TPHC was non-detectable in all other wells. The concentration in MW8 of 2.3 mg/l was only marginally above the action level. The TPHC results are summarized on Plate 15 and in Tables II-2 and 5 in Volume II.

d) PPMs

Four of the eight shallow monitoring wells analyzed for PPMs contained concentrations of one or several metals exceeding the informal ECRA action levels (MW2, MW14, MW16, MW18). The remaining four shallow (MW6, MW8, MW10, MW12) and all seven deep wells sampled for metals showed no concentrations above the informal action levels.

The metals detected or exceeding the informal ECRA action levels most often were antimony, beryllium, cadmium, chromium, copper, lead, mercury and nickel. These metals were present at significant levels in both MW2 and MW16. Antimony was detected in MW14, MW18, and MW16. Arsenic as detected above the informal ECRA action level in MW16. The analytical results for PPMs in ground water are summarized on plate 16 and in Tables II-2 and II-8 of Volume II.

e) PCBs and Pesticides

PCBs were detected in only one of the 17 ground water samples analyzed for PCBs. MW2 contained PCBs (86 ug/1) in excess of the informal ECRA action level. No pesticides were detected in any of the monitoring wells tested for PCBs at the site. PCB analytical results are summarized on Plate 17 and in Tables II-2 and 9 in Volume II.

f) AE/BNs and Phenols

AEs and phenols were detected in shallow well MW8 at concentrations above the informal ECRA action level. All the AEs detected were phenol type compounds. No other ground water sample exceeded the informal ECRA action level for AEs or phenols.

BNs were detected at significant concentrations in four shallow monitoring wells, MW6, MW8, MW10 and MW16. The most common BN compounds detected were 1,2-dichlorobenzene and bis(2-ethylhexyl)phthalate. The highest concentration of BNs was detected in MW6 (727 ug/1) and the lowest was detected in MW10 (67 ug/1), which marginally exceeded the previous informal ECRA action level of 50 ug/1. AE/BNs and phenol results are summarized in Tables II-2, 6 and 7 of Volume II.

4. Quality Assurance/Quality Control Results

a) Trip Blanks

The nine trip blanks that accompanied the field crew were analyzed for VOCs. Three different compounds were detected in three different trip blanks. Methylene chloride (6 ug/1) was detected in the trip blank from August 30. Chlorobenzene (13 ug/1) was detected in the trip blank from September 7 and chloroform (47 ug/1) was detected in the trip blank from September 10. VOCs results are summarized in Tables II-2 and 4 of Volume II.

b) Wash Blanks

Eight wash blanks were collected and analyzed for the compounds for which samples collected that day were analyzed. The VOC methylene chloride was detected at low levels in each of the wash blanks. The VOC trichloroethene was detected at a low level in wash blank 1302-WBO1. The BN compound bis(2-ethylhexyl)phthalate and the PPMs lead and zinc were detected in wash blank MWO1-WBO1. No TPHCs, PCBs, or Pesticides were detected in any of the wash blanks.

c) Duplicate Samples

Ten pairs of duplicate soil samples and one pair of duplicate ground water samples were collected and analyzed during the sampling program. In only one sample (105, 1.5-2.0 ft.), analyzed for PCBs, was there a duplicate with a detectable concentration in one sample and a non-detectable concentration in the other. The detectable concentration was below the informal ECRA action level.

IV. DISCUSSION

A. General

The results of the sampling program indicate that VOCs and, to a more limited extent, TPHCs are the primary contaminants of concern at the site in soil and VOCs are the primary contaminants of concern in ground water. The extent of contamination suggests that additional site investigation and remediation may be required in the next phase of work.

Several additional compounds, such as PCBs, PPMs, AEs, and BNs, have been detected at concentrations above the informal ECRA action levels but their occurrence is in general either coincident with more significant VOC or TPHC contamination or at levels that place them at a much lower priority in a subsequent cleanup plan. The specific patterns of contamination, including discussion of QA/QC results, are presented below.

B. Quality Assurance/Quality Control Results

1. Trip Blanks

Three compounds were detected in the trip blanks, methylene chloride, chlorobenzene and chloroform. Methylene chloride is considered a common laboratory contaminant. Chlorobenzene and chloroform were detected in soil and ground water samples. However, the levels detected were not sufficient to have altered any sample affected by possible cross contamination concentration above the informal ECRA action level. ENVIRON therefore believes that sample

handling and transport procedures were adequate to ensure the integrity of the sample results.

2. Wash Blanks

The results from the field wash blanks indicate that the decontamination procedures were effective. Concentrations of the few compounds detected in the wash blanks were either close to the minimum detection limits or similar to concentrations in the laboratory method blanks. In no case was a compound detected in a wash blank at a concentration that would alter the relationship of a sample's concentration to the informal ECRA action level. ENVIRON therefore believes that no significant cross-contamination occurred during sample collection.

3. Duplicate Samples

The results of duplicate analyses indicate generally good analytical reproducibility. The variation observed in the analytical results from duplicate samples is probably due to the heterogeneous nature of the soils sampled. In no case was there a difference such that one sample was below and one sample above the informal ECRA action levels. ENVIRON therefore believes that the reported sample concentrations are representative of the concentrations present in the various samples collected and analyzed.

C. <u>Compounds No Longer of Concern During Future Site Investigation and Remediation</u>

General

The analytical results indicate that a number of targeted compounds either have not been detected; were observed at <u>de minimis</u> concentrations; or occur only in a few on-site areas. Pesticides, cyanide, and several PPMs, including selenium, silver, thallium, and zinc, were not detected at concentrations above the informal ECRA action levels in any of the soil or ground water samples analyzed for these constituents. Other compounds (AEs, BNs and phenols) detected above the informal ECRA action levels either occur at <u>de minimis</u> concentrations in relation to the action levels or are present in only a few isolated areas containing significant concentrations of another constituent, such as VOCs. For these reasons these compounds will not be considered during the future site investigation and remediation. All tested compounds and their distribution and occurrence on-site is presented below.

2. Pesticides

Pesticides were analyzed for in five soil samples and thirteen ground water samples and were not detected on-site. Pesticides are therefore no longer of concern and no further sampling for pesticides is anticipated.

3. Cyanide

Cyanide was analyzed for in five soil samples and thirteen ground water samples and was not detected above the informal ECRA action level in any sample. Cyanide is therefore no longer a compound of concern and no further analysis of samples for cyanide is anticipated.

4. Selenium, Thallium, Zinc and Bromide

Five soil samples and sixteen ground water samples were analyzed for PPMs. Two soil samples were analyzed for bromide (601-SB02, 601-SB03). None of the samples contained concentrations above the informal ECRA action levels for selenium, silver, thallium, zinc or bromide. These metals are therefore no longer of concern and no further sampling is anticipated.

5. AEs and Phenols

AEs and phenols were also analyzed for in five soil samples and thirteen ground water samples and were not detected above the informal ECRA action level in any soil sample. In only one ground water sample, MW8, were total AEs and phenols detected above their informal ECRA action levels (50 ug/1 and 3,500 ug/1 respectively). Those AEs detected were all phenol type compounds. As discussed in Section III, MW8 also contained much more significant VOC and TPHC concentrations which will likely be the focus of future remediation activities.

6. BNs

BNs were not detected above the informal ECRA action level in any of the five soil samples analyzed and were detected above the previous informal ECRA action level in only 4 of 11 ground water samples (MW6, MW8, MW10, and MW16). In shallow well MW10 the BN concentration was only marginally above the previous action level. In MW6 and MW8, VOCs concentrations exceeded the informal ECRA action level by a much higher degree as compared to BNs. Since the ground water remediation will likely be driven by the VOC contamination, BNs are judged to be an insignificant ground water contaminant.

D. Compounds of Concern for Future Site Investigation and Remediation

1. General

VOCs, TPHCs, PCBs and several PPMs were detected above the informal ECRA action levels in soil and ground water samples. TPHCs in soil and VOCs in soil and ground water are present at levels above the informal ECRA action levels over a large portion of the site. On the other hand, PCBs (one soil and one ground water sample) and the metals (two soil and four ground water samples) have been detected to a more limited areal extent.

2. VOCs Above the Informal ECRA Action Level in Soils

VOCs have been detected by laboratory analysis in soils above the informal ECRA action level in AECs 1-9. In addition HNu screening results have evidenced VOC contamination in AEC 13. For this discussion and as previously approved by the NJDEP, a sample screened with the HNu and having a positive detection is assumed to be in excess of the informal ECRA action level unless laboratory testing indicates the contrary. A thorough statistical analysis of the correlation between HNu screening results and laboratory test results is presently ongoing and will be discussed in a subsequent submittal to the NJDEP.

The analysis of soils from AEC 1 suggests VOC contamination vertically from grade surface to the water table and laterally comprising the area marked AEC 1 on Plate 1 extending eastward to include sample locations 104 and 105.

Laboratory analysis and HNu screening in AEC 2 have detected VOCs in a similar pattern to AEC 1. VOCs above the informal action level are present in soil from the surface (1.5-2.0 ft.) to the water table and may extend across the area underlying the tank farm.

AEC 3 is the location of an aboveground tank farm including tanks 3-7. VOCs above the informal ECRA action level have been detected in soils from sample locations 301, 302, and 303. The contamination extends vertically from grade surface to the water table and laterally in the area designated as AEC 3 on Plate 1.

AEC 4 is the area surrounding aboveground tank 4. VOC soil contamination exceeding the informal ECRA action level was detected not at the surface, but at depth, above the water table. As discussed later, VOCs are present at high concentrations in ground water underlying AEC 4. The volatilization of those contaminants into soils just above the water table is a possible source for the VOCs detected at depth in AEC 4.

AEC 5 is the area surrounding aboveground tanks 9-12. Soil samples collected from sample locations 501, 502, 503, and 504 contained VOC above the informal ECRA action level from grade surface to the water table. Laterally, VOC contamination extends from the area marked AEC 5 on Plate 1 in an easterly direction to include sample locations 501, 502, 503, and 504.

Tanks 21-24 and the surrounding area comprise AEC 6. The tank farm is located on a concrete slab and is enclosed by a concrete dike. VOCs were detected in both shallow and deep soil samples. As will be discussed subsequently in the ground water section, VOC contamination exists below AEC 6 and may be contributing to the VOCs detected in soils in this area.

AEC 7 is the area surrounding aboveground tanks 26, 27 and an abandoned underground gasoline tank. VOCs were detected above the informal ECRA action level in surface soil samples (1.5-2.0 ft.) and above the water table at borings 702 and 703. The VOC compounds detected include benzene anad toluene which suggest the gasoline

tank as one possible source. In general, the VOC contaminants appear to be concentrated near borings 702 and 703.

AEC 8 is an empty drum storage area in the southwest corner of the site. VOCs were detected above the informal ECRA action level from the surface to above the water table.

AEC 9 is the raw material drum storage area west of Building 12. VOCs have been detected in surface soil samples (1.5-2.0 ft.) from locations 901, 902, 903, and 904. They have also been detected above the informal ECRA action level to the depth of the water table at locations 901 and 904. The lateral extent of VOC soil contamination may exceed the area surrounding sample locations 901-904. The vertical extent is to the depth of the water table at locations 901 and 904. AEC 9 is also the location of the industrial sewer pipes and manhole. Leaks from the sewer may be contributing to the contamination detected.

3. VOCs Above the Informal ECRA Action Level in Ground Water

VOCs have been detected at significant concentrations in 7 of the 9 shallow wells and in all 8 deep wells. In the shallow aquifer the highest concentrations were detected in MW6. As discussed in the Results section, a ground water sample was collected from the bottom of MW6 which was drilled to and screened from the top of the clay layer that separates the shallow and deep aquifers. Dense Non-Aqueous Phase Liquids (DNAPL) were detected in MW6 and consist of several compounds (see Plate 13).

Plate 18 is a structural contour map depicting the elevation (relative to mean sea level) of the clay layer underlying the site. The map was constructed using measurements made during the installation of monitoring wells at the site. The map shows a low elevation area surrounding MW6 which seems to serve as a sink and retention area for the DNAPL. VOCs detected in MW6 and a downgradient well MW8 (see Plate 6) are probably the result of the dissolution of DNAPL into ground water. The DNAPL in MW6 can possibly be linked to leaks and spills passing through breaks either in the concrete and asphalt in the process areas (AECs 2, 3, 4, 5 and 6 and Buildings 1 and 11) or in the network of drains that collect spills and leaks in the process areas and discharges them to the industrial sewer.

Plate 6 illustrates the movement of shallow ground water toward Saddle Brook across most of site. However, in the area of AEC 1 and Building 1 ground water may flow in a southerly direction.

Monitoring wells 2, 10, 16 and 18 are downgradient of the process area. VOCs detected in MW4 are most likely due to its being located in the process area.

VOCs detected in ground water samples taken from shallow wells MW2, MW10, MW16 and MW18 may also be attributable to the lack of integrity in the paved areas and drainage system of the process areas.

VOCs have been detected at significant concentrations in ground water samples from all 8 deep monitoring wells (MW1, MW3, MW5, MW7,

MW9, MW11, MW13, and MW15) (see Plate 14). Monitoring well MW1 was originally intended to be a background well, assuming ground water was flowing toward Saddle Brook. However, both review of the geologic logs constructed during the deep well installations and the observed elevation of Saddle Brook show that the clay layer underlying the site also underlies Saddle Brook. Therefore the deep aquifer appears not to be hydrologically connected to Saddle Brook. Additional evidence is provided by Plate 7, which shows deep aquifer ground water flow in general to be from northeast to southwest, not directed toward Saddle Brook, as in the shallow aquifer.

Based on ground water flow direction and the absence of VOCs in soil north of MW13 and MW15 the source of VOCs detected in MW13 and MW15 may be off-site. Further investigation into background ground water quality may be warranted to confirm this hypothesis.

VOCs in MW3, MW5, MW7, MW9 and MW11 were detected at considerably lower concentrations than those detected in the shallow aquifer. VOCs detected in these deep wells may be a result of breaches in the clay layer underlying the shallow aquifer during the past construction of buildings at the site.

VOCs detected in MWl are at the highest concentration observed in any of the deep well ground water samples. The source of contamination may be explained by reviewing Plate 18, the structural contour of the clay layer, and Plate 4, the geologic cross-sections A-A' and D-D'. Plate 4 shows a thinning of the clay layer at the eastern boundary of the site where MWl is located. If the clay

layer pinches out, VOCs influenced by gravity may move down slope toward MWl where the shallow and deep aquifers may be to be hydrologically connected. The installation of a shallow monitoring well next to MWl and analysis of shallow ground water may be required to further investigate VOCs in MWl.

4. TPHCs Above the Informal ECRA Action Level in Soil

TPHCs have been detected above the informal ECRA action level in soil samples in AECs 1-10, 13 and 14. Many of these areas, but not all, also show concentrations in excess of the informal action level for VOCs which may also be the source of TPHC contamination.

In general it is likely that the remediation of VOCs at the site may also remediate any TPHC contamination.

5. TPHCs Above the Informal ECRA Action Level in Ground Water

TPHCs were detected above the informal ECRA action level in shallow monitoring wells MW4 and MW8. As discussed previously, both wells are also contaminated with VOCs which may be the source of detected contamination. Inasmuch as VOCs will likely be the driving force in the remediation of the site, further investigation of TPHCs in these and the other monitoring wells on-site (shallow and deep) will be addressed in parallel with subsequent investigation and/or remediation of VOC contaminated ground water.

6. PCBs Above the Informal ECRA Action Level in Soil and Ground Water

One shallow monitoring well (MW2) and one soil sample (1506, 8.0-8.5 ft.) contained PCBs (Aroclor 1248) above the informal ECRA action levels. PCBs were used in the heat exchange system of Building 1 which is no longer in operation. Both MW2 and 1506 are located downgradient and adjacent to the boiler room. Aroclor 1248 is the form of PCB detected in samples that have been associated with the heat exchange system.

7. PPMs Above the Informal ECRA Action Levels in Soil

Of the five soil samples analyzed for PPMs, two samples (801, 1101) contained levels of antimony and beryllium above the informal ECRA action levels. Sample location 801 is in the empty drum storage area in the southwest corner of the site. Sample location 1101 is in the product drum storage area in the northeast corner of the site. The present activities at these locations, which are not potential sources for antimony or beryllium, were filled prior to construction to provide level ground at the site. The occurrence of antimony and beryllium in these samples may therefore be related to the fill material brought to the facility from off-site. The need for further investigation or remediation of soils contaminated with antimony and beryllium will be addressed in the subsequent cleanup plan.

8. PPMs Above the Informal ECRA Action Levels in Ground Water

Several PPMs were detected above the informal ECRA action levels in shallow ground water samples. Cadmium, chromium, copper, lead, and mercury were detected above the informal action levels in monitoring wells MW2 and MW16. Arsenic was detected in MW18, and mercury in MW6, both above the informal ECRA action levels.

Antimony, beryllium, and nickel which do not have informal ECRA action levels, were detected in ground water samples from wells MW2, MW16, and MW18. Antimony alone was detected in MW14 and nickel was detected in the samples from MW8 and MW10.

The collection of ground water samples for PPM analysis followed NJDEP protocols and did not include filtering. Additional sampling, including the analysis of filtered and unfiltered ground water samples from these wells, will determine if the metals exist in solution or are a function of sediments collected in the ground water samples.

V. SUMMARY

A. General

An extensive sampling plan examining soil and ground water quality at the Fine Organics Corporation facility in Lodi, New Jersey was implemented during July, August, and September, 1988. Soil and ground water samples were collected from 15 AECs. Samples were analyzed for a combination of VOCs, TPHC, PCBs, PPMs, Pb, Br, and PP+40.

B. Soil Contamination

Laboratory analysis and HNu screening of soil samples have detected VOCs above the informal ECRA action level in 10 of 15 AECs across the site. VOCs, the most frequently detected compounds at the site, have been detected from the surface to the water table in each of the 10 AECs. These AECs are located in the southern half of the site and center around the process areas and aboveground tank farms.

TPHCs have been detected above the informal ECRA action level in soils from the surface to the water table (when sampled at depth) in 12 of 15 AECs at the site. The occurrence of TPHCs in soil is generally coincident with the occurrence of VOCs in soil. TPHC contamination is centered around the process areas, aboveground tank farms, and several drum storage areas.

PCBs were detected above the informal ECRA action level in one soil sample, while antimony and beryllium were detected in two sample locations. The sample that exceeded the informal ECRA action level for

PCBs was collected at a depth below the water. PPMs, antimony, and beryllium were detected in soil samples from drum storage areas at opposite ends of the site. The levels of contamination detected, are only slightly above the informal ECRA action levels.

C. Ground Water Contamination

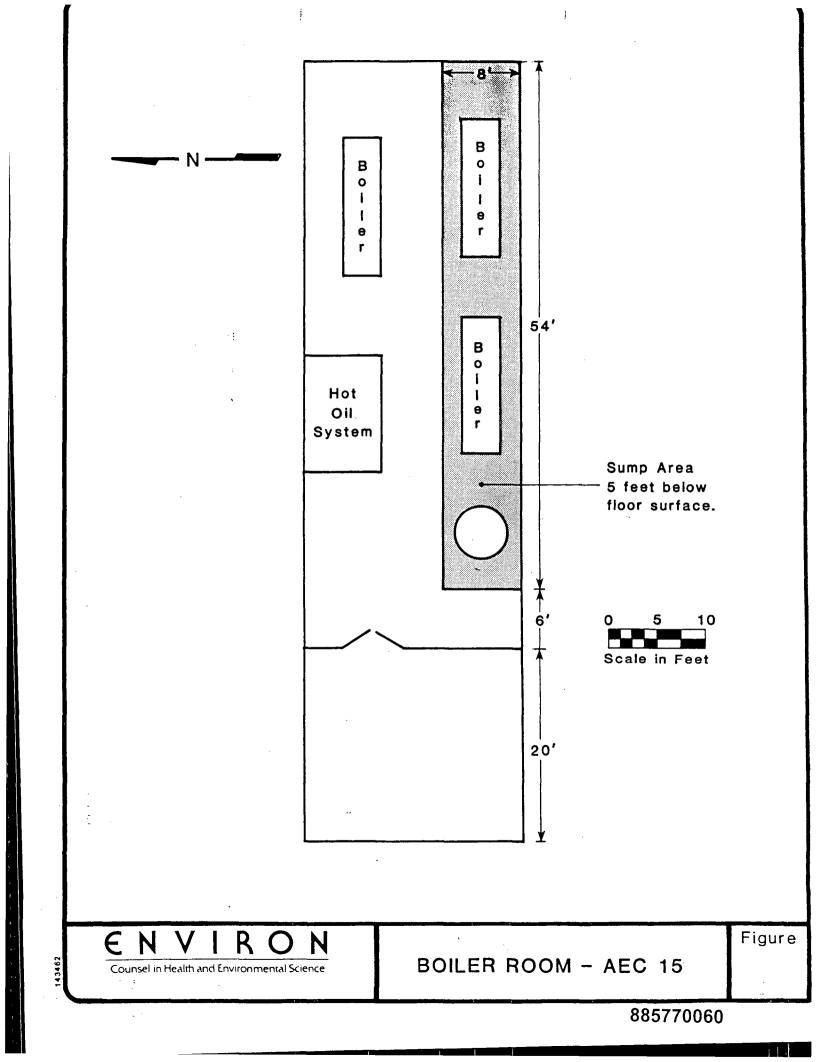
VOCs were detected above the informal ECRA action level in most shallow and all deep monitoring wells at the site although at lower concentration in the latter. VOCs will likely be the subject of future site investigation and remediation. Several PPMs were detected either above their informal ECRA action levels or at levels of concern. In particular antimony, beryllium, cadmium, chromium, copper, lead, mercury, and nickel were detected in two shallow wells at the southern end of the site. Antimony was also detected in one shallow well in the northern end of the site. The detection of metals may be an artifact of not filtering samples during the field investigation.

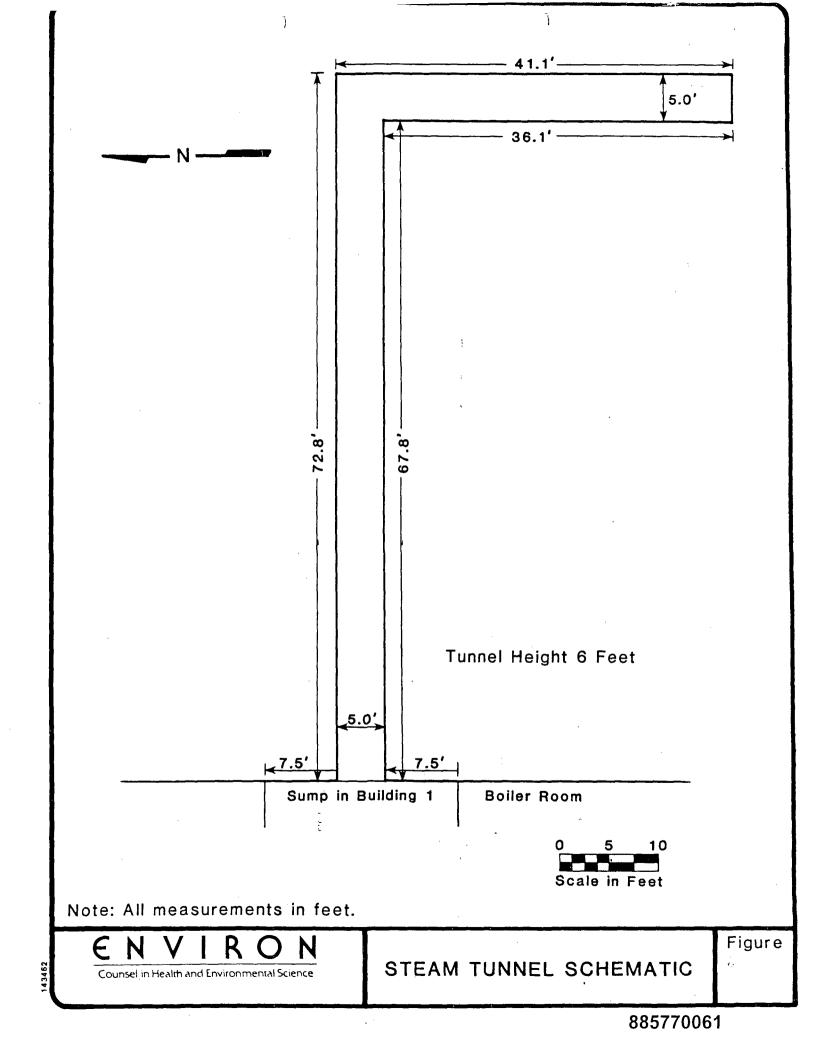
D. Cleanup and Further Investigations

As agreed, a cleanup plan will be developed and submitted for the site. An understanding of the hydraulic properties of the shallow and deep aquifers, a more accurate structural contour map of the clay layer underlying the site, and additional ground water analyses will be required to fully develop the ground water portion of the cleanup plan. Delineation of the horizontal and vertical extent of soil contamination in those areas where further investigation is required will also be

addressed in the cleanup plan. For those areas where the extent of soil contamination is understood, proposals will be made for their remediation.

1637e





Water Allocation CN 029 Trenton, N.J. 08625

DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J.

PERMIT TO DRILL WELL

VALID ONLY AFTER A.	PPROVAL BY THE D.E.P.
Owner HEXCEL COLD	Driller Navissia Carrott Carrott
Address 650 Cal For WIA ST.	Address CO Box 433
SANTA CISCO CALF	Jorse/Oil MOLENOISOY M3
lame of Facility HEXCEL - CHE'MA CO. 19. ACT	Diemeter of Well Inches Depth of Well 7 Feet
address	Proposed Method of Drilling Capacity of Pump GPM (cable-tool,rotary,etc.)
. LUDI 12.5. 07644	Use of Well (See Reverse)
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Block# Municipality County Land	Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.
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Permit issued in accordance with provisions of letter of transmittal dated Authorization by rule under N.J.A.C. 7:14A-1 et seq.	APPROVE D
Samples of cuttings required every	APR 10 1985
The results of a volatile organic scan mut be obtained prior to using the w	rater and submitted to DEPT. ENV. PROTECTION
Domestic Potable Water Supply - The service line for water from the publ	ic community water supply DIV. OF VIATER RESOURCES
system shall be turned off at the curb cock, and the meter shall be removed. Domestic Irrigation Supply - No piping from the well for which the permit	
Industrial/Commercial Supply - A physical connection permit shall be obtained N.J.A.C. 7:10-10-1 et seq., and a vigorous cross connections control primaintained within the premises.	
Heat Pump Wells - Wells must be 50 feet apart and the water must be retu production well.	rned to the same aquifer as the

ampliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above. . 1.

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N. J. TEL. (201) 433-9797

WARREN GEORGE, INC.

FOOT OF JERSEY AVENUE P. O. BOX 413 JERSEY CITY, N.J. 07303

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ң. U. Box 9583 Little Ro Arkansas 72219 Telephone 501-562-7444

ase-print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2000-0404. Expires 7-31-8

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Å	WASTE MANIFEST WITIO 1 10 9 6 3 9 2 4 8 9 7 5 2 2	2. Page 1 Information in the shaded areas is not required by Federal law.						
T	3. Generator's Name and Mailing Address	A. State Manifest Document Number						
	Fine Organics AR- 76911							
	205 North Main St. Lodi, NJ 07644	B. State Generator's ID						
	4. Generator's Phone (201) 472-6800							
	5. Transporter 1 Company Name 6. US EPA ID Number C. State Transporter's ID # 7/PC							
	E. T. G. I. INIJ DO 0 0 6 9 2 0 6 1 D. Transporter's Phone 201-3							
	7. Transporter 2 Company Name 8. US EPA ID Number E. State Transporter's ID H10							
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	16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately des							
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	method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to							
	regulations.							
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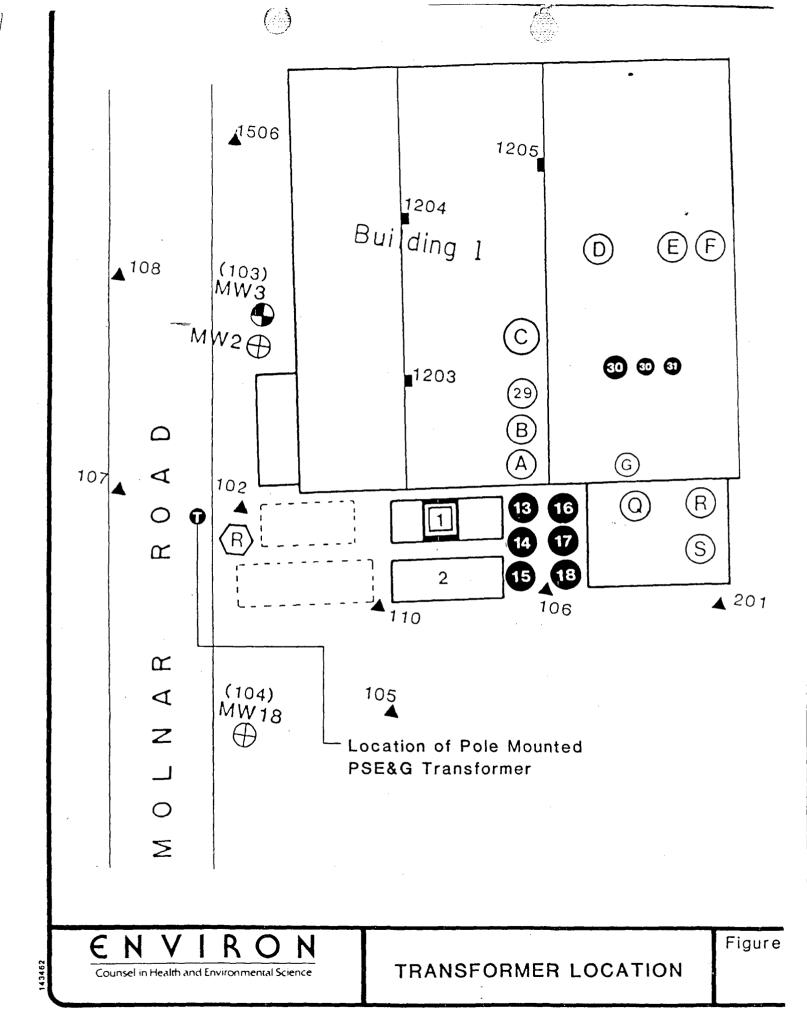


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	16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and a name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transpotional and national government regulations. Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I h method of treatment, storage, or disposal currently available to me which minimizes the present and fut regulations.	ert by highway a waste minir ave determin	accordinization	ng to applicable in dertification under economically pract	lerna- Section 3 icable ar	d I have selected the			
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	4. Generator's Phone (20/) 472-6800	B. State Generator's ID							
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	7. Transporter 2 Company Name 8. US EPA ID Number E. State Transporter's ID H								
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	16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately des name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway tional and national government regulations.								
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Department of Pollutio P. O. Box 9583 Little . . . k, Arkansas 72219 Telephone 501-562-7444

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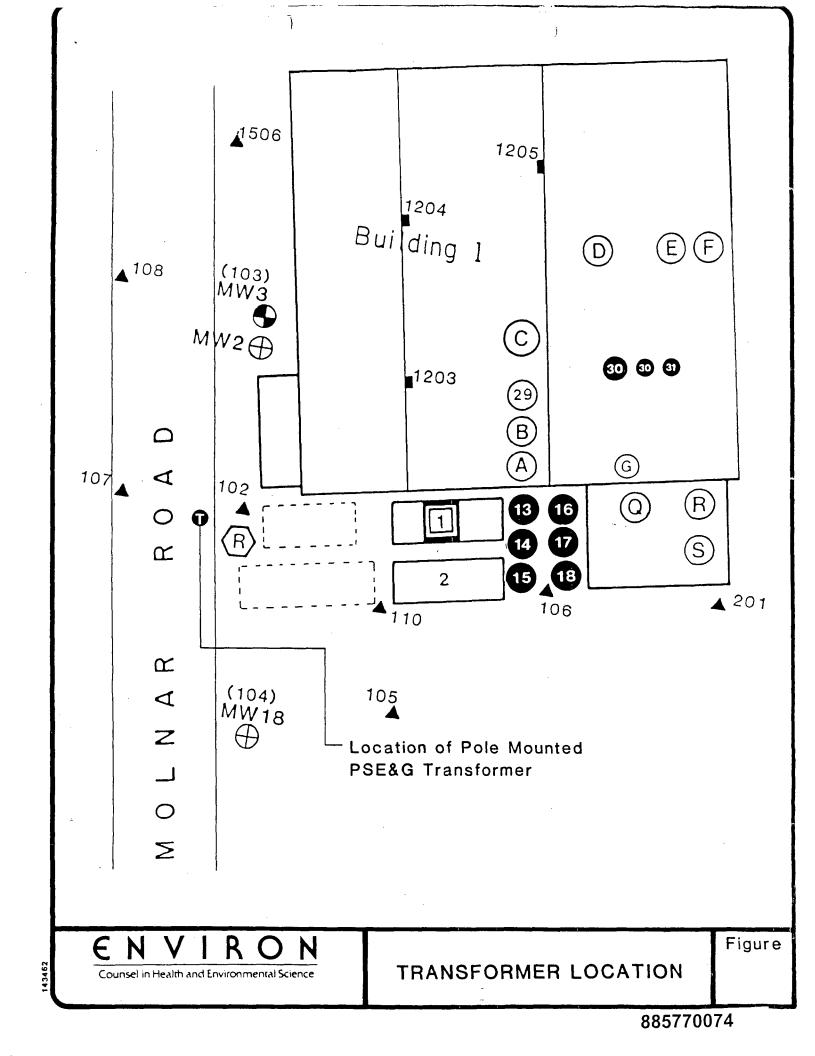
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Form Approved. OMB No. 2000-0404. Expires 7-31-86

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	15. Special Handling Instructions and Additional Information PCB contaminated #4 fue! Dil >500 PPM PCB 120% H20 L/T **VIDEPS7107(6068) NSSS8-TRX										
	16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international government regulations.										
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ATTACHMENT 5



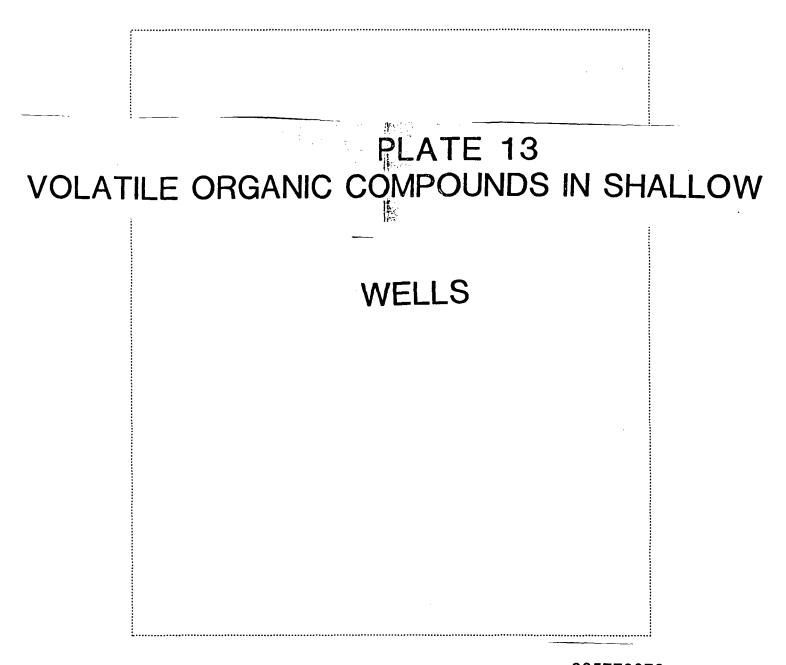
ATTACHMENT 6

ATTACHMENT 7

THIS MAP IS AN OVERSIZED DOCUMENT. IT IS AVAILABLE FOR REVIEW AT THE U.S. EPA SUPERFUND RECORDS CENTER, 290 BROADWAY, 18TH FLOOR, NEW YORK, NY 10007
PHONE: (212) 637-4308.

PLATE 12 PRIORITY POLLUTANT METALS IN SOIL SAMPLES

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PHONE: (212) 637-4308.



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PHONE: (212) 637-4308.

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VOLATII	PLATE 14 LE ORGANIC COMPOUNDS IN DEE	P WELLS

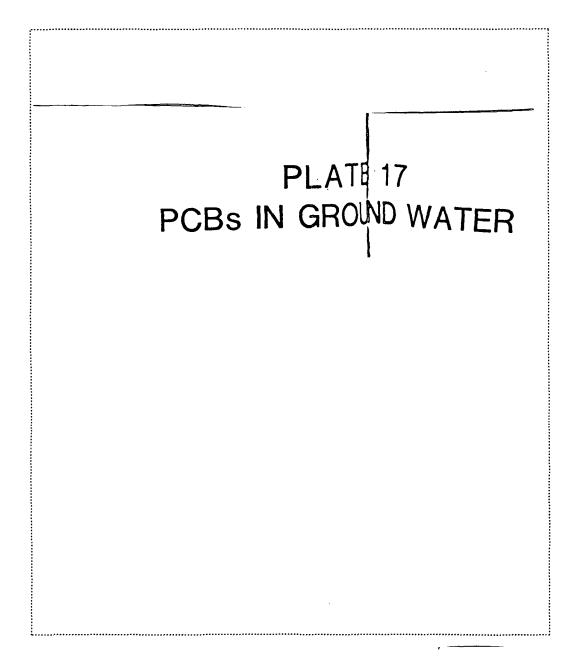
THIS MAP IS AN OVERSIZED DOCUMENT. IT IS AVAILABLE FOR REVIEW AT THE U.S. EPA SUPERFUND RECORDS CENTER, 290 BROADWAY, 18^{TH} FLOOR, NEW YORK, NY 10007 PHONE: (212) 637-4308.

TOTAL PETROLEUM HYDROCARBONS IN GROUND WATER

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PLATE 16 PRIORITY POLLUTANT METALS IN GROUND WATER

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PHONE: (212) 637-4308.



APPENDIX A

Sample Locations, Depths and Analyses

TABLE A-1

SAMPLE LOCATION	MATRIX	DEPTH	COMMENTS	TPHC	PCB	VOC	OTHER
 (MW1) BG01-SB01	Soil	5.5-6.0					PP+40
0102-SB01 0102-SB02 0102-SB03 0102-SB04 0102-SB05	Soil Soil Soil Soil	·0.5-1.0 1.5-2.0 4.5-5.0 6.0-6.5 6.5-7.0		x ¹ x x x	X X X X	NS ² X X	
(MW3) 0103-SB01 0103-SB02 0103-SB03 0103-SB04 0103-SB05 0103-SB06	Soil Soil Soil Soil Soil	0.5-1.0 1.5-2.0 4.5-5.0 5.5-6.0 7.0-7.5 24-24.5		X X X X	X X X X	X NS NS	
(MW18) 0104-SB01 0104-SB02 0104-SB03 0104-SB04 0104-SB05	Soil Soil Soil Soil	0.5-1.0 1.5-2.0 5.5-6.0 6.0-6.5 7.0-7.5	·	x x x x	X X X X	NS X X	
0105-SB01 0105-SB02 0105-SB22 0105-SB03 0105-SB04 0105-SB05	Soil Soil Soil Soil Soil	0.5-1.0 1.5-2.0 1.5-2.0 4.0-4.5 6.5-7.0 7.5-8.0	Duplicate Duplicate		X X X X	X NS NS	Pb Pb
0106-SB01 0106-SB11 0106-SB02 0106-SB22 0106-SB03 0106-SB04 0106-SB05	Soil Soil Soil Soil Soil Soil	0.5-1.0 0.5-1.0 1.5-2.0 1.5-2.0 4.0-4.5 6.0-6.5 6.5-7.0	~	X	X X X X	ns ns ns	
0107-SB01 0107-SB02 0107-SB03	Soil Soil Soil	4.0-4.5 6.0-6.5 7.0-7.5		X X X	X X X	NS X	

¹

X - Sample underwent laboratory analysis.
 NS - Sample underwent HNu field screening and was not sent for laboratory analysis.

TABLE A-1

SAMPLE LOCATION	MATRIX	DEPTH	COMMENTS	TPHC	PCB	VOC	OTHER
0108-SB01 0108-SB02 0108-SB03	Soil Soil Soil	4.0-4.5 6.0-6.5 7.0-7.5		X X X	X X X	NS X	
0109-SB01 0109-SB02 0109-SB03	Soil Soil Soil	4.0-4.5 6.0-6.5 11.5-12.0		X X X	X X X	X X	
0110-SB01 0110-SB02 0110-SB03 0110-SB04 0110-SB05	Soil Soil Soil Soil	0.5-1.0 1.5-2.0 5.0-5.5 7.0-7.5 8.0-8.5		X X X X	X X X X	ns ns ns	
0201-SB01 0201-SB02 0201-SB03	Soil Soil Soil	0.5-1.0 1.5-2.0 4.5-5.0		х		NS X	
0301-SB01 0301-SB11 0301-SB02 0301-SB22 0301-SB03	Soil Soil Soil Soil	0.5-1.0 0.5-1.0 1.5-2.0 1.5-2.0 6.0-6.5	Duplicate Duplicate Duplicate Duplicate	X		ns ns ns	
0302-SB01 0302-SB11 0302-SB02 0302-SB22 0302-SB03	Soil Soil Soil Soil	0.5-1.0 0.5-1.0 1.5-2.0 1.5-2.0 6.0-6.5	Duplicate Duplicate Duplicate Duplicate	X		X X X	
(MW4) 0303-SB01 0303-SB02 0303-SB03	Soil Soil Soil	0.5-1.0 1.5-2.0 5.5-6.0		х		NS X	
0401-SB01 0401-SB11 0401-SB02 0401-SB22 0401-SB03	Soil Soil Soil Soil	0.5-1.0 0.5-1.0 1.5-2.0 1.5-2.0 5.0-5.5	Duplicate Duplicate Duplicate Duplicate	X		X X X	

Sample underwent laboratory analysis.
Sample underwent HNu field screening and was not sent for laboratory analysis. NS -

TABLE A-1

SAMPLE LOCATION	MATRIX	DEPTH	COMMENTS	TPHC	PCB	VOC	OTHER
0501-SB01 0501-SB02	Soil Soil	0.5-1.0		x ,		NS	Pb
0501-SB02	Soil	4.5-5.0				X	Pb
0502-SB01 0502-SB02	Soil Soil	0.5-1.0 1.5-2.0		x		NS	Pb
0502-SB02 0502-SB03	Soil	4.5-5.0				NS	Pb
0503-SB01 0503-SB11	Soil Soil	0.5-1.0 0.5-1.0	Duplicate Duplicate	X X			Pb Pb
0503-SB11 0503-SB02 0503-SB03	Soil Soil	1.5-2.0	Dupiicace	^		NS NS	Pb
0503-8503		4.5-5.0				NO	
0504-SB01 0504-SB02	Soil Soil	0.5-1.0 $1.5-2.0$		X		NS	Pb
0504-SB03	Soil	4.5-5.0				NS	Pb
(MW7)							
0601-SB01 0601-SB02	Soil Soil	0.5-1.0 1.5-2.0		X			PP+40,
0601-SB03	Soil	5.5-6.0				X	Br
0701-SB01	Soil	1.0-1.5		X	••	••	7.1
0701-SB02 0701-SB03	Soil Soil	1.5-2.0 5.5-6.0		X X	X X	X NS	Pb Pb
0701-SB04	Soil	14-14.5				NS	
0702-SB01	Soil	1.0-1.5		X	1,	170	D.L
0702-SB02 0702-SB03	Soil Soil	1.5-2.0 6.0-6.5		X X	X X	NS X	Pb Pb
0702-SB04	Soil	11-11.5				NS	1
0703-SB01	Soil	1.0-1.5		X	••	••	51
0703-SB02 0703-SB03	Soil Soil	1.5-2.0 6.0-6.5		X X	X X	X NS	Pb Pb
0703-SB04	Soil	13-13.5		••	••	NS	
0704-SB01	Soil	13-13.5	•			NS	3
	Soil	13-13.5				NS	

¹

Sample underwent laboratory analysis. Sample underwent HNu field screening and was not sent for laboratory analysis. NS -

TABLE A-1

		_					
SAMPLE LOCATION	MATRIX	DEPTH	COMMENTS	TPHC	PCB	VOC	OTHER
0706-SB01	Soil	13-13.5				NS	
0707-SB01	Soil	13-13.5					
0708-SB01	Soil	13-13.5				NS	
0801-SB01 0801-SB02 0801-SB03	Soil Soil Soil	1.0-1.5 1.5-2.0 4.0-4.5		X		x	PP+40
0901-SB01 0901-SB02 0901-SB03	Soil Soil Soil	0.5-1.0 1.5-2.0 5.0-5.5		X		NS	PP+40
0902-SB01 0902-SB02	Soil Soil	1.5-2.0 7.5-8.0				NS X	
0903-SB01 .0903-SB02	Soil Soil	1.5-2.0 6.0-6.5	,			NS X	,
0904-SB01 0904-SB02	Soil Soil	1.5-2.0 6.0-6.5				NS NS	
1001-SB01 1001-SB02	Soil Soil	0.5-1.0 1.5-2.0		X		x	
1002-SB01 1002-SB02 1002-SB03	Soil Soil Soil	0.5-1.0 1.5-2.0 5.5-6.0		x x		x	
1101-SB01 1101-SB02 1101-SB03	Soil Soil Soil	0.5-1.0 1.5-2.0 6.0-6.5		. X		x	PP+40
1102-SB01 1102-SB02	Soil Soil	1.5-2.0 6.0-6.5				X NS	
1103-SB01 1103-SB02	Soil Soil	1.5-2.0 6.0-6.5	- ,			X NS	
1203-WS01	Gauze	SUMP	Wall Wipe	Э	X		

Sample underwent laboratory analysis.
Sample underwent HNu field screening and was not sent for laboratory analysis.

TABLE A-1

 			,				
SAMPLE LOCATION	MATRIX	DEPTH	COMMENTS	TPHC	PCB	VOC	OTHER
 1204-WS01	Gauze	SUMP	Wall Wipe		X		
1205-WS01	Gauze	SUMP	Wall Wipe		X		
1301-SB01	Soil	1.5-2.0				NS	
1302-SB01 1302-SB02 1302-SB03 1302-SB04	Soil Soil Soil	1.0-1.5 2.0-2.5 3.5-4.0 7.0-7.5		X X X	X X X	X NS	
1303-SB01 1303-SB02	Soil Soil	0.5-1.0 1.5-2.0		X X	x	x	
1401-SB01 1401-SB02 1401-SB03	Soil Soil Soil	1.0-1.5 1.5-2.0 4.0-4.5		X X X	X X	X NS	
1506-SB01 1506-SB02 1506-SB03 1506-SB04	Soil Soil Soil	0.5-1.0 1.5-2.0 4.5-5.0 8.0-8.5	·	X X X X	X	x	
MW01-GW01 MW02-GW01 MW03-GW01 MW04-GW01 MW05-GW01 MW06-GW01 MW06-GWDP MW07-GW01	Water Water Water Water Water Water Water	NA NA NA NA NA NA NA	DNAPL	X X X X X	x x	x x x x	PP+40 PPM PPM PP+40 PP+40
MW08-GW01 MW09-GW01	Water Water	NA NA		X X			PP+40 PP+40
MW10-GW01 MW11-GW01 MW12-GW01 MW13-GW01 MW13-GW11 MW14-GW01	Water Water Water Water Water Water	NA NA NA NA NA	Duplicate Duplicate				PP+40 PP+40 PP+40 PP+40 PP+40 PP+40

¹

Sample underwent laboratory analysis.
Sample underwent HNu field screening and was not sent for laboratory analysis.

TABLE A-1

SAMPLE	Wampiy	DEPTH	COMMENTS	TPHC	DCD	WOC.	OTHER
LOCATION	MATRIX	DEPIR	COMMENTS	IPAC	PCB	VOC	OTHER
MW15-GW01	Water	NA		X			PP+40
MW16-GW01	Water	NA		X			PP+40
MW18-GW01	Water	NA		X	X	X	PPM
TB-880726	Water	NA	Trip Blank	,		х	
TB-880809	Water	NA	Trip Blank			X	
TB-880810	Water	NA	Trip Blank			X	
TB-880815	Water	NA	Trip Blank		•	X	
TB-880830	Water	NA	Trip Blank			X	
TB-880907	Water	NA	Trip Blank			X	
TB-880908	Water	NA	Trip Blank			X	
TB-880909	Water	NA	Trip Blank			X	•
TB-880910	Water	NA	Trip Blank			X	
			-				
0103-WB01	Water	NA	Wash Blan	k X	X	X	
0107-WB01	Water	NA	Wash Blan	k X	X	X	
0110-WB01	Water	NA	Wash Blan	k X	X	X	
0401-WB01	Water	NA	Wash Blan		X	X	
1206-FB01	Gauze	NA	Wash Blank		X		•
1302-WB01	Water	NA	Wash Blan		X	X	
MW01-WB01	Water	NA	Wash Blan				PP+40
MW11-WB01	Water	NA	Wash Blan	k X	X	X	

1650e

¹

Sample underwent laboratory analysis.
Sample underwent HNu field screening and was not sent for laboratory analysis.

APPENDIX B Monitoring Well and Soil Boring Logs

TABLE B-1 Monitoring Well Data (in feet)

				DEPTH TO		ELEVATIONS RELATIVE TO MEAN SEA LEVE				
	GROUND ELEVATION	STICKUP HEIGHT	WELL DEPTH	8/30/88	FROM PVC 11/1/88	STEEL	PVC	GROUND WATER 8/30/88	GROUND WATER 11/1/88	
1		3.58	20.15	10.25			32.42	22.17	21.97	
2	27.9	3.52	6.77	8.1	8.74	31.42	31	22.9	22.26	
3	27.84	3.49	27.54	10.55	10.76	31.33	31.13	20.58	20.37	
4	29.02	3.54	6.53	8.24	8.42	32.56	32.28	24.04	23.86	
5	29.03	3.67	24.91	11.63	11.67	32.7	32.5	20.87	20.83	
6	27.14	3.89	15.02	10.22	10.32	31.03	30.7	20.48	20.38	
7	21.18	3.67	29.63	10.02	10.17	30.85	30.68	20.65	20.51	
8	26.92	3.57	13.94	11.53	11.82	30.49	30.26	18.73	18.44	
9	26.89	313	26.8	9.11	9.31	30.02	29.83	20.72	20.52	
10	27.33	3.77	13.52	12.26	12.43	31.1	30.83	18.57	18.4	
11	27.28	3.68	30.42	10.33	10.62	30.96	30.78	20.45	20.16	
12	27.62	3.87	13.57	10.59	10.83	31.49	31.1	20.42	20.27	
13	27.63	3.7	29.74	10.27	10.24	31.33	31.16	20.89	20.92	
14	27.12	3.8	11.94	11.22	11.5	30.92	30.7	19.98	19.2	
15	27.17	3.78	22.04	9.4	9.53	30.95	30.77	21.37	21.52	
16	26.71	3.17	9.57	6.78	7.53	29.88	29.69	22.91	22.16	
18	29.04	3.42	8.07	9.42	9.69	32.46	32.23	22.81	22.54	

2613571-0 Permit ≠: Date:

7/26/88

S. Bozza Logged by:

Drilling Co.:

J.E. Fritts

Driller:

W. Lipscomb

Rig:

Mobile 80

Method:

Mud Rotary

Casing -

13.5ft/15ft Length:

8in/4in Diameter:

Type:

steel/pvc

Screen -Length:

5ft

Diameter: 4in

Slot Size: 10

Project Name: <u>HEXCEL</u>

C3-536A Case Number:

6.86ft Depth to Water:

Surface Elevation: 29.03ft

Į Ę	o pic	str.	2 9 9 8	500	rval	nts	Description
Depth	Graphic Log	Well Constr.	Lab Sample	Sample	Sample Interval	Blow	Description
-0-					0.5-2	3,5,3	0-0.5 Asphalt
- 5 -	<i>p</i> .		<u> </u>	/		8,3,6,8 4,5,8, 12	0.5-8.0 Sand and Gravel fill redbrown to brown fine, silty
	<u>م</u>					9,9,19, 14 10,15,	
10-					'	9,7 8,11,19 ,12	
					13.5-	10,6,5	11.5-13.0 Clay light gray, silty 13.0-18.0 Sand and Gravel
-15 -					15-17	9,7,9,	gray to white, sorted subrounded
-20-					18-20	7,4,3,	
				-	2022	6,3,2,	20.0-22.0 Clay, brown to redbrown silty
25-	- -	 	+	-			
-30-	 - 	1		- - -			
1 =	†	-		-			885770092

LOG OF BORING/WELL

2613572-8 Permit ≠:

8/17/88

Logged by: S. Bozza

J.E. Fritts Drilling Co.:

Driller:

Date:

W. Lipscomb

Rig:

Mobile 80

Method:

HSA

Casing -

Length:

Screen -

3ft

4in

Type:

Diameter:

pvc

5ft

Diameter:

Length:

4in

Slot Size: 10

Project Name: HEXCEL

Case Number: _C3-536A

5.0ft Depth to Water:

·	· · · · · · · · · · · · · · · · · · ·			,		
Depth	Graphic Log	Well Constr.	Samples Log	Sample Interval	Blow Counts	Description
-0-	4		+			0.0-0.5 Top Soil
¹ [1			0.5-5.0 Fill, Sand brown to black
 - 5 -	, v					
-				6-8	6,4,4,2	5.0-7.0 Sand and Gravel grey to brown
<u> </u>			I Y	-		7.0-8.0 Clay, light grey to brown
-10-			Ŧ			
	-		 			
, F	† -					
-15 - -	- -		T			
IF] :		Ŧ			
-20	- -		1			
` .	-		 			
	-		T			
-25	- -		IŦ			
	‡ :		‡			
-30-	‡ -		1			
	‡ :	1	‡			885770093

2613573-6 Permit ≠:

8/15/88 Date:

Logged by: S. Bozza

Drilling Co.:

J.E._Fritts

Driller:

W. Lipscomb

Rig:

Mobile 80

Method:

Mud Rotary

Casing -

8 ft/23ft Length:

Diameter: 8in/4in

Type:

steel/pvc

Screen -

Length:

5ft

Diameter: 4in

Slot Size: 10

HEXCEL Project Name: _

C3-536A Case Number:

Depth to Water:

7.26

			γ			·		
Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow		Description
0 -	A .0	*****	-		0-2	dug	0.0-5.0	Fill, Sand brown to black
5 -	δ				5-7 7-9	push push	5.0-7.0	Sand and Gravel redbrown to grey
-10-			1 1 1	-			7.0-22.0	Clay, light grey to brown silty
-15			, , , , , , , , ,					
20-								Sand and Gravel
-25-				-	24-26	push		brown to grey, subrounded
-30-		;; <u> </u>		-				885770094

LOG OF BORING/WELL

Permit ≠:

2613574-4

Date:

8/10/88

Logged by:

B. Kraft

Drilling Co.:

J.E. Fritts

Driller:

J. Bell

Rig:

Track

Method:

HSA

Casing -

Length:

2ft

Diameter: 4in

Type:

pvc

5ft

Screen -

Length:

4in

Diameter: _

Slot Size: 10

Project Name: HEXCEL

Case Number: C3-536A

Depth to Water:

4.98

Depth	Graphic	Well Constr.	Lab Samples	Samples Sample Interval	Blow Counts		Description	
-0-				1-3	8,11,15 29		Concrete	
5 -			. ½	3-5	26,32, 31,28 26,46, 47,93	3.0-7.0 S	Fill, Sand, brown, Sand and Gravel brown to grey poorly sorted	fine
10-								
15-						·		
20-						•		
25-								
-30-							88	5770095

2613575-2 Permit ≠:

8/3/88

S. Bozza

Logged by:

Drilling Co.:

J.E. Fritts

Driller:

W. Lipscomb

Rig:

Date:

Mobile 80

Method:

Mud Rotary

- Casing -

Length: 8 ft/20ft

Diameter: 8in/4in

Type:

steel/pvc

Screen -

Length:

_5ft

4in Diameter:

Slot Size: 10

Project Name:

HEXCEL

C3-536A Case Number:

Depth to Water:

8.16

Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow		Description
- 0 -			-	- -	1.5-3	5,8,15	0.0-0.5 0.5-3.0	Concrete Fill, Sand, brown, fine
- - 5 -	4. ▷		-	<u>/</u> -/	3-5 5-7	17,23, 14,16 17,19, 18,17	3.0-7.0	Sand and Gravel brown to grey poorly sorted
			-		7-9 9-10	25,35, 37,38 26,38	7.0-20.0	Clay, grey to greybrown silty
- 10 - 			1		10-12 12-14	27,32, 35,49 10,9,9,		
- 15 - - 15 -			-		14-16 16-18	10 5,9,11, 11 6,8,13,		
- 20 -			1		18-20	11 8,8,9, 12		
- - -				:/ -/	20-22	8,11,19	20.0-26.0	Sand and Gravel brown to redbrown silty
- 25 -			1 1		24-26	15 13,12, 11,11		
- 30 -	-		1 1 1					885770096

2613576-1 Permit ≠:

Casing -

3ft/5ft Length:

HEXCEL Project Name:

8/12/88 Date:

Case Number: <u>C3-536A</u>

Diameter: 8in/4in

Logged by: Drilling Co.:

S. Bozza

6.66

J.E. Fritts

steel/pvc

10ft

4in

Depth to Water:

Driller:

W. Lipscomb

Screen -Length:

Type:

Rig:

Mobile 80

Surface Elevation: 27.14

Method:

HSA

Diameter:

Slot Size: 10

	Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow	Description
F	0 -				-			0.0-0.5 Asphalt
	5 -							0.5-12.0 Fill, Sand and Gravel brown to black, discolored
	10 -			, , , ,				12 0 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	- - 15 - -			1 1 1	-	13-15	7,11, 19,8	12.0-15.0 Sand and Gravel grey to brown, rounded
	- - 20 - -			1 1 1 1 1				-
	25 - 25 - - -			1 1 1 1	1 1 1 1 1			
	- - 30 - - -							885770097

2613577-9 Permit ≠:

7/27/88

S. Bozza Logged by:

Drilling Co.: J.E. Fritts

Driller:

Date:

W. Lipscomb

Rig;

Mobile

Method:

Mud Rotary

Casing -

Length: 16.5ft/24ft

Diameter: 8in/4in

Type:

steel/pvc

Screen -

Length:

5ft

Diameter: 4in

Slot Size: 10

Project Name: <u>HEXCEL</u>

Case Number:

C3-536A

Depth to Water:

6.53

Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow Counts		Description
- 0 -			-		0.5-2	23,28,	0.0-0.5	Asphalt
- 5 -	Δ		-	- <u>/</u> - <u>/</u>	2-4 4-6	27,28, 31,46 29,21, 15,17	0.5-12.0	Fill, Sand and Gravel brown to black
-10-	4				6-8 8-10	6,4,3,3		
- - - -15 -				/ -/	10-12 12-14 14-16	5,5,8, 10 10,13, 14,15 6,14,8,	12.0-15.0	Sand and Gravel grey to brown
					16-17	8 7,8 3,4,3	15.0-24.0	Clay, grey to redbrown silty, moist, occasionally sandy
-20-					18.5- 20.5 20.5- 22.5 22.5-	3,4,5,8		
- -25 -				<u>/</u> -/,	24.5 25-27	7,12,9, 10 8,20, 14,10	25.0-29.0	Sand and Gravel grey to white, subrounded
30-			-	-	27~29	12,12,		•

LOG OF BORING/WELL

Permit ≠:

2613578-7

8/11/88

B. Kraft Logged by:

J.E. Fritts Drilling Co.:

Driller:

Date:

J. Bell

Rig:

Track

Method:

HSA

Casing -

Length:

4ft

Diameter: _Ain

Type:

pvc

Screen -

Length:

10

4in

Diameter: _

Slot Size: _10

Project Name: <u>HEXCEL</u>

Case Number:

C3-536A

Depth to Water:

8.19

\					·			· ·
Depth	Graphic	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow Counts		Description
- 0 -			-	_			0.0-1.0	Asphalt
5 -							1.0-10.0	Fill, Sand and Gravel black to brown, discolored
10-	<i>q</i> .					;	10.0-14.0	Sand and Gravel reg to grey
15 -			1	-/	14-16	11,15, 18,21	14.0-16.0	Clay, grey, silty, moist
20-						20,22		
25-	- - - -		1 1 1 1		,			
30-	† ·		1 1 1 1					885770099

Permit ≠: 2613579-5

Date: <u>7/22/88</u>

Logged by: S. Bozza

Drilling Co.: J.E. Fritts

Driller: W

W. Lipscomb

Rig:

Mobile 80

Method:

Mud Rotary

Casing -

Length: <u>15.5ft/22ft</u>

Diameter: 8in/4in

Type:

steel/pvc

Screen -Length:

5ft

Diameter: 4in

Slot Size: 10

Project Name: HEXCEL

Case Number: C3-536A

Depth to Water: $\frac{6.17}{}$

ļ								
	Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow	Description
	- 0 - 	Δ.			Z	0-2	12,7,2, 10	0.0-1.0 Asphalt 1.0-10.0 Fill, Sand and Gravel,
	- 5 -	D 2			_/	2-4 4-6	7,5,14, 20 18,21,	brown to grey, silty
1		٥.				6-8	13,16 8,6,5,4	10.0-14.0 Sand and Gravel
	- -10-	Δ :		-	_/	: :	8,6,4,1 24,20,	red to grey
!				-			22,16 8,8,6,8	
	-15 -				_/		11,14, 21,23 7,8,9,	14.0-21.5 Clay, grey to red
	- - 20 -						10 8,8,8,8	
				-	_/		12,18, 20,17 17,24,	21.5-26.0 Sand and Gravel, brown to red, poorly sorted rounded
	- 25 - 25 -			-			17,18 12,10, 10,14	
	 			-	-			
	-30 <i>-</i>	- - -		-	-			885770100

2613580-9 Permit ≠:

Casing -Length: Project Name: <u>HEXCEL</u>

Date:

8/11/88

3ft 4in Diameter:

C3-536A Case Number:

Logged by:

B. Kraft

Depth to Water:

Drilling Co.:

J.E. Fritts

pvc

8.76

Driller:

J. Bell

Screen -

Rig:

Track

Length:

Type:

11f+

Surface Elevation: 27.33

Method:

HSA

Diameter: 4in

Slot Size: 10

Depth	Graphic Log	Well Constr.	Lab Samples	Sample Interval	Blow	Description
-0-	V		+			0.0-0.5 Asphalt
) -	P 0		+			0.5-11.0 Fill, Sand, Silt and Gravel, grey to black
5 -	•		+			·
			1			
10-	4		+			
-			+			11.0-14.0 Sand and Gravel, grey to brown
-15				14-16	12,11,	14.0-16.0 Clay, grey to brown
			 		11,12	silty
	† ·					
20-			T			
1 -	 		+			
-25	† -		+			
E						
-30-	 	-	+			005770404
t	† ·	1	1 †			885770101

Permit ≠:

2613566-3

Casing ~ Length: Project Name: <u>HEXCEL</u>

Date:

7/25/88

8in/4in Diameter:

16.5ft/20ft

Case Number: C3-536A

Logged by:

S. Bozza

steel/pvc

6.83

Drilling Co.:

J.E. Fritts

Type:

Depth to Water:

Driller:

W. Lipscomb

Screen -Length:

10ft

Surface Elevation: 27.28

Rig:

Mobile 80

Diameter: 4in

Method:

Mud Rotary Slot Size: 10

	Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow Counts		Description
	- 0 -	5 . \$\footnote{7}\$		-	-/	0-2	24,30,	0.0-0.5	Asphalt
		3					14,12 6,6,3,3	0.5-11.0	Fill, Sand and Gravel grey to black
	- 5 - 	Ġ				4-6 6-8	2,2,2,1 13,17,		
ļ	- - - 10 -	7				8-10	13,9 6,2,2,1		
				-	-/	10-12	1,2,4,	11.0-14.0	Sand and Gravel, grey to brown, rounded
	- -15 -			-			17,18, 19,16 9,8,10,	14.0-19.0	Clay, grey to brown, silty
	. .				-/	16-17.5 17.5-	9 4,5,6 7,8,8,8		
	- 20 - - 20 -					19.5 19.5- 21.5 21.5-	6,3,23, 22	19.0-30.0	Sand and Gravel, grey to white to red,
	- · - ·					23.5	18,24, 17,16		rounded
	- 25 - 			1		25-27	6,16, 15,15		
	 - 30-			-	7	28-30	14,14, 13,10		
		<u> </u>		-					885770102

26135767-1 Permit #:

8/11/88 Date:

B. Kraft Logged by:

J.E. Fritts

Drilling Co.:

Driller:

J. Bell

Track Rig:

Method:

HSA

Casing -

Length:

7ft

Diameter: _4in

Type:

pvc

_10ft

Screen -

Length:

4in Diameter:

Slot Size: 10

Project Name:

HEXCEL

Case Number:

C3-536A

Depth to Water:

7.20

Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample interval	Blow		Description
- 0 -			-	-			0.0-0.5	Asphalt
	Δ						0.5-6.0	Fill, Sand and Gravel grey to black
- 5 -	7		-				6.0-14.0	Sand and Gravel, brown to grey, silty
-10-			-	-	12-14	13,11,		
-15 -			-	-		17,9		
-20-	 		1 1 1	1 1				
- 25 -			1.1.1	-				•
			1 1 1	-				
- 30 -								885770103

2613568-0 Permit ≠:

7/29/88

Date: S. Bozza Logged by:

J.E. Fritts

Drilling Co.:

W. Lipscomb Driller:

Rig:

Mobile 80

Mud Rotary Method:

Casing -

16.5ft/25ft Length:

Diameter: Rin/4in

steel/pvc Type:

Screen -

5ft Length:

4in Diameter:

Slot Size: 10

Project Name: HEXCEL

Case Number: C3-536A

6.74 Depth to Water:

Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow	Description
- 0 -				./.	0-2 2-4	24,10, 20,14 24,14, 9,9	0.0-0.5 Asphalt 0.5-6.0 Fill, Sand and Gravel, grey to black
- 5 -			1 1 1 1	-/ -/	4-6 6-8 8-10	9,8,9, 6 4,2,2, 6 12,9,	6.0-14.0 Sand and Gravel, brown to grey,
-10-			1 1 1 1 1		10-12 12-14 14-16 16.5-	12,4 12,13, 8,14 19,28, 19,7 10,11, 12,16	14.0-23.5 Clay, grey to red, silty
-20-				7	18 18-20 20-22	8,9,9 9,9,9, 7 7,7,6,	· •
- 25			-		22-24 24-26 26-28	3,4,5, 6 21,23, 25,24 13,13, 16,21	23.5-30.0 Sand and Gravel, brown to grey, poorly sorted, subrounded
-30-			-	 			885770104

<u> 2613569-8</u> Permit ≠:

Casing -Length: Project Name: <u>HEXCEL</u>

Date:

8/12/88

Diameter: _4in_

Case Number: <u>C3-536A</u>

Logged by: B. Kraft

DVC

Drilling Co.: J.E. Fritts

Type:

Depth to Water:

7.64

Driller:

Screen -

Surface Elevation: 27.12

J. Bell

Length:

9ft

3ft

Rig;

Track

Method:

HSA

Diameter: _4in

Slot Size: _10

. 1							
Depth	Graphic Log	Well Constr.	Lab Samples	Log Samples	Sample Interval	Blow Counts	Description
0	?		+	-			0.0-7.0 Fill, Sand and Gravel, brown to grey
5 -			+				7.0-12.0 Sand and Gravel, brown, occasionally silty
-10-				-/	10-12	3,7,9, 11	,
-15 -			+	-			
20-	_			-			
-25-			+	- - -			
30-	-			-			885770105

2613570-1 Permit ≠:

7/21/88

S. Bozza Logged by:

Drilling Co.: J.E. Fritts

Driller:

W. Lipscomb

Rig:

Date:

Mobile 80

Method:

Mud Rotary

Casing -

Length: 14ft/17ft

Diameter: 8in/4in

Type:

steel/pvc

Screen -

Length:

5ft

Diameter: 4in

Slot Size: 10

Project Name: <u>HEXCEL</u>

C3-536A Case Number:

Depth to Water:

5.80

I.							
Depth	Graphic Log	Well Constr.	Samples Log	Sample Interval	Blow		Description
0			1	0-2	6,6,12, 15	0.0-7.0	Fill, Sand and Gravel brown to grey
5 -			<u> </u>	2-4 4-6 6-8	18,76, 20,12 5,6,5, 2 4,1,1,		
-10-			/	8-10	2 4,7,10, 12 12,17,	7.0-12.0	Sand and Gravel brown, silty
-15-				12-14	28,20 8,17, 19,13 6,12	12.0-16.5	Clay, grey to red, silty
				15-17	6,6,11, 16 8,10, 13,14	16.5-22.0	Sand and Gravel, grey to white to red rounded
20-			1	20-22	13,10,	·	
25-	 						
30-	 						. 885770106

2613599-0 Permit ≠:

5ft

Project Name: <u>HEXCEL</u>

Date:

8/10/88

Case Number: <u>C3-536A</u>

Logged by:

B. Kraft

Drilling Co.: J. E. Fritts

pvc

3.80

Driller:

Depth to Water:

J. Bell

Screen -Length:

Diameter: 4in

Surface Elevation: 26.71

Rig:

Track

Casing -

Length:

Type:

Method:

HSA

Diameter: 4in

Slot Size: 10

5ft

Depth	Graphic Log	Well Constr.	Lab Samples	Log	Sample Interval	Blow Counts		Description
- 0 -			_	-			0.0-1.0	Asphalt
- 5 -	\$ \$. \$		1 1 1 1				1.0-8.0	Fill, Sand and Gravel brown to black, discolored
-10-			1 , 1		8-10	3,2,1,	8.0-10.0	Sand and Gravel, brown to black, poorly sorted
			_	_	10-12	2,3,6,	10.0-12.0	Clay, grey silty
-15-	† -		-					
- - - 20-	† - + - + - + -					·	<u>-</u>	
- 25	+ - + - + - + -		-	-				·
-30-	+ · + · - · + ·		-	- - -				885770107

2613601-5 Permit ≠:

Casing -Length: Project Name: <u>HEXCEL</u>

Case Number:

Date:

8/10/88

Diameter: _4in

C3-536A

Logged by:

B. Kraft

Type:

6.23

Drilling Co.:

J.E. Fritts

Depth to Water:

Driller:

J. Bell

Screen -

DVC

3ft

Surface Elevation: 29.04

Length:

5ft

Rig:

Track

Method:

HSA

Diameter: 4in

Slot Size: 10

Depth	Graphic Log	Well Constr.	Lab Samples Log Samples	Sample Interval	Blow Counts	Description
-0-						0.0-1.0 Asphalt
	~			1-3	5,7,3,	1.0-3.0 Fill, Sand and Gravel brown, silty
5 -				3-5 5-7	6 11,12, 18,26 18,14, 15,17	3.0-8.0 Sand and Gravel, brown to black, silty
			1	7-9	13,17,	8.0-9.0 Clay, grey, silty
10-						
1 -			‡			
15 -	-		‡			
	-		Ŧ			
	-		†			
20-	+ -					•
	-		† +			
-25-	-		‡			•
非 :	+ -					
	† -		‡			
30-	 				,	885770108
}-	┼ -	1	 			

Boring No. 102

Geologic Log

0.0' - 0.5' Concrete

0.5' - 5.0' Fill, sand, brown, medium

5.0' - 6.5' Sand and gravel, brown to black, oily

6.5' - 7.0' Clay, grey, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	4, 5, 6, 6	140 lb.	18 in.
2	3 - 5'bgs	3, 11, 2, 2	140 lb.	12 in.
3	5 - 7' bgs	3, 2, 2, 4	140 lb.	18 in.

Sample ID No.	Analyses	Depth
536A-0102-SB01	TPHC	0.5-1.0'
536A-0102-SB02	PCB, VOC	1.5-2.0'
536A-0102-SB03	TPHC, PCB, VOC	4.5-5.0'
536A-0102-SB04	TPHC, PCB, VOC	6.0-6.5'
536A-0102-SB05	TPHC, PCB	6.5-7.0'

Boring No. 105

Geologic Log

0.0' - 0.5'	Concrete
0.5' - 6.0'	Fill, sand, brown to grey, coarse, gravel
6.0' - 7.5'	Sand and gravel, brown to black
7.5' - 8.0'	Clay, grey to red grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Dept	.h	Blow Counts	Hammer	Recovery
1	1 - 3	'bgs	8, 9, 5, 5	140 lb.	14 in.
2	3 - 5	'bgs	8, 7, 6, 5	140 lb.	24 in.
3	5 - 7	'' bgs	8, 12, 13, 16	140 lb.	20 in.
4	7 - 9	' bgs	4, 3, 6, 7	140 lb.	12 in.

Sample ID No.	Analyses	Depth
536A-0105-SB01	TPHC	0.5-1.0'
536A-0105-SB02	VOC, PCB, Pb	1.5-2.0'
536A-0105-SB22	VOC, PCB, Pb	1.5-2.0'
536A-0105-SB03	VOC, TPHC, PCB	4.0-4.5'
536A-0105-SB04	VOC, TPHC, PCB	6.5-7.0'
536A-0105-SB05	TPHC, PCB	7.5-8.0'

Boring No. 106

Geologic Log

0.0' - 0.5' 0.5' - 6.5' 6.5' - 7.0' Concrete

Fill, sand, brown to red brown

Clay - red brown to grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	4, 4, 11, 7	140 lb.	
2	3 - 5' bgs	10, 8, 8, 3	140 lb.	18 in.
3	5 - 7' bgs	6, 9, 5, 5	140 lb.	24 in.

Sample ID No.	Analyses	Depth
536A-0106-SB01	TPHC	0.5-1.0'
536A-0106-SB11	TPHC	0.5-1.0'
536A-0106-SB02	PCB, VOC	1.5-2.0'
536A-0106-SB22	PCB	1.5-2.0'
536A-0106-SB03	TPHC, PCB, VOC	4.0-4.5'
536A-0106-SB04	TPHC, PCB, VOC	6.0-6.5'
536A-0106-SB05	TPHC, PCB	6.5-7.0'

Boring No. 107

Geologic Log

0.0' - 0.5'	Asphalt
0.5' - 6.0'	Fill, sand, grey to brown
6.0' - 7.0'	Sand and gravel, brown to grey, oil sheen
7.0' - 8.0'	Clay, tan, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 8/9/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	4 - 6' bgs	23, 21, 18, 18	140 lb.	
2	6 - 8' bgs	12, 14, 14, 18	140 lb.	24 in.

Sample ID No.	<u>Analyses</u>	Depth
536A-0107-SB01	VOC, TPHC, PCB	4.0-4.5'
536A-0107-SB02	VOC, TPHC, PCB	6.0-6.5'
536A-0107-SB03	TPHC, PCB	7.0-7.5'

Boring No. 108

Geologic Log

0.0' - 0.5'	Asphalt
0.5' - 6.0'	Fill, sand and gravel, oil sheen
6.0' - 7.0'	Sand and gravel
7.0' - 8.0'	Clay, grey to brown, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 8/9/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	4 - 6' bgs	21, 17, 13, 13	140 lb.	
2	6 - 8' bgs	14, 14, 19, 27	140 lb.	24 in.

Sample ID No.	Analyses	Depth
536A-0108-SB01	VOC, TPHC, PCB	4.0-4.5'
536A-0108-SB02	VOC, TPHC, PCB	6.0-6.5'
536A-0108-SB03	TPHC, PCB	7.0-7.5'

Boring No. 109

Geologic Log

0.0'- 0.5'	Asphalt
0.5'- 8.0'	Fill, sand, brown to black, silty
8.0'-11.5'	Sand and gravel, black to brown
11.5 -12.0'	Clay, grey to red brown, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 8/9/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	D	epth	Blow Counts	Hammer	Recovery
1	4 -	6' bgs	2, 3, 4, 6	140 lb.	24 in.
2	6 -	8' bgs	3, 5, 4, 3	140 lb.	22 in.
3	8 -	10' bgs	5, 3, 5, 8	140 lb.	24 in.
4	10 -	12' bgs	12, 14, 17, 19	140 lb.	24 in.

Sample ID No.	Analyses	<u>Depth</u>
536A-0109-SB01	VOC, TPHC, PCB	4.0-4.5'
536A-0109-SB02	VOC, TPHC, PCB	6.0-6.5'
536A-0109-SB03	TPHC, PCB	11.5-12.0'

Boring No. 110

Geologic Log

0.0' - 0.5'

0.5' - 6.5'

6.5' - 7.5'

Sand and gravel, brown to black, oily

7.5' - 9.0'

Concrete

Fill, sand, brown

Cand and gravel, brown to black, oily

Clay, grey, silty, laminated

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/8/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts_	Hammer	Recovery
1	0.5 - 2.0' bgs	17, 21, 11,	140 lb.	14 in.
2	4 - 6' bgs	28, 30, 44, 37	140 lb.	0 in.
3	5 - 7' bgs	34, 21, 18, 14	140 lb.	12 in.
4	7 - 9' bgs	5, 10, 14, 18	140 lb.	24 in.

Sample ID No. 536A-0110-SB01	Analyses TPHC	Depth 0.5-1.0'
536A-0110-SB02	VOC. PCB	1.5-2.0'
536A-0110-SB03	VOC, TPHC, PCB	5.0-5.5'
536A-0110-SB04	VOC, TPHC, PCB	7.0-7.5'
536A-0110-SB05	TPHC, PCB	8.0-8.5'

Boring No. 201

Geologic Log

0.0' - 0.5' 0.5' - 5.0' Concrete

Fill, sand and gravel, brown to grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	7, 9, 8, 7	140 lb.	12 in.
2	3 - 5' bgs	7, 9, 3, 11	140 lb.	15 in.

Sample ID No.	Analyses	Depth
536A-0201-SB01	TPHC	0.5-1.0'
536A-0201-SB02	VOC	1.5-2.0'
536A-0201-SB03	VOC	4.5-5.0'

Boring No. 301

Geologic Log

0.0' - 0.5'	Concrete
0.5' - 4.0'	Fill, sand, brown, fine
4.0' - 6.5'	Sand and gravel, brown to red brown
6.5' - 7.0'	Clay, red grey, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	4 - 6' bgs	45, 40, 31, 34	140 lb.	2 in.
2	5 - 7' bgs	26, 22, 16, 12	140 lb.	18 in.

Sample ID No.	Analyses_	Depth
536A-0105-SB01	TPHC	0.5-1.0'
536A-0105-SB11	TPHC	0.5-1.0'
536A-0105-SB02	VOC	1.5-2.0'
536A-0105-SB22	VOC	1.5-2.0'
536A-0105-SB03	VOC	6.0-6.5'

Boring No. 302

Geologic Log

0.0' - 0.5'

Concrete

0.5' - 4.0' 4.0' - 8.0'

Fill, sand, brown, fine

Sand and gravel, brown to red

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/8/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	4 - 6' bgs	17, 26, 21, 30	140 lb.	
2	6 - 8' bgs	19, 21, 13, 29	140 lb.	8 in.

Sample ID No.	Analyses	Depth
536A-0302-SB01	TPHC	0.5-1.0'
536A-0302-SB11	TPHC	0.5-1.0'
536A-0302-SB02	VOC	1.5-2.0'
536A-0302-SB22	VOC	1.5-2.0'
536A-0302-SB03	VOC	6.0-6.5'

Boring No. 401

Geologic Log

0.0' - 0.5'

Concrete

0.5' - 5.0'

Fill, sand, brown to dark brown

5.0' - 8.0' Sand and gravel, brown to red brown

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/8/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	5 - 7' bgs	8, 7, 10, 9	140 lb.	
2	7 - 8' bgs	78, 100	140 1ъ.	0 in.

Sample ID No.	Analyses	Depth
536A-0401-SB01	TPHC	0.5 - 1.0
536A-0401-SB11	TPHC	0.5-1.0
536A-0401-SB02	TPHC, VOC	1.5-2.0
536A-0401-SB22	VOC	1.5-2.0
536A-0401-SB03	VOC, TPHC	5.0-5.5

Boring No. 501

Geologic Log

0.0' - 0.5' 0.5' - 5.0' Concrete

Fill, sand, brown to dark brown

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	4, 12, 18, 17	140 lb.	12 in.
2	3 - 5' bgs	7, 6, 5, 3	140 lb.	8 in.

Sample ID No.	<u>Analyses</u>	Depth
536A-0501-SB01	TPHC, Pb	0.5-1.0'
536A-0501-SB02	VOC	1.5-2.0'
536A-0501-SB03	VOC, Pb	4.5-5.0'

Boring No. 502

Geologic Log

0.0' - 0.5' 0.5' - 5.0' Concrete

Fill, sand and gravel, brown to black

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	2, 4, 5, 5	140 lb.	10 in.
2	3 - 5'bgs	6, 8, 10, 3	140 1ь.	18 in.

Sample ID No.	<u>Analyses</u>	Depth
536A-0502-SB01	TPHC, Pb	0.5-1.0'
536A-0502-SB02	VOC	1.5-2.0'
536A-0502-SB03	VOC, Pb	4.5-5.0'

Boring No. 503

Geologic Log

0.0' - 0.5' 0.5' - 5.0' Concrete

Fill, sand and gravel, brown to grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow_Counts	Hammer	Recovery
1	1 - 3' bgs	5, 5, 4, 5	140 lb.	12 in.
2	3 - 5' bgs	17, 22, 16, 18	140 lb.	16 in.

Sample ID No.	Analyses	Depth
536A-0503-SB01	TPHC, Pb	0.5-1.0'
536A-0503-SB11	TPHC, Pb	0.5-1.0'
536A-0503-SB02	VOC	1.5-2.0'
536A-0503-SB03	VOC. Pb	4.5-5.0'

Boring No. 504

Geologic Log

0.0' - 0.5' 0.5' - 5.0'

Concrete

Fill, sand and gravel, brown to grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	4, 4, 11, 7	140 lb.	19 in.
2	3 - 5'bgs	10, 7, 14, 3	140 lb.	6 in.

Sample ID No.	Analyses	Depth
536A-0504-SB01	TPHC, Pb	0.5-1.0'
536A-0504-SB02	VOC	1.5-2.0'
536A-0504-SB03	VOC, Pb	4.5-5.0'

Boring No. 701

Geologic Log

0.0' - 1.0'	Asphalt
1.0' - 11.0'	Fill, sand and gravel, black to brown
11.0' - 14.5'	Sand and gravel, brown
14.5' - 15.0'	Clay, grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts Date Drilled: 9/9/88

Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	18, 24, 30, 16	140 lb.	18 in.
2	5.5 - 7.5' bgs	4, 5, 7, 8	140 lb.	17 in.
3	13 - 15' bgs	13, 6, 7, 8	140 1ъ.	20 in.

Sample ID No.	Analyses	Depth
536A-0701-SB01	TPHC	1.0-1.5'
536A-0701-SB02	VOC, TPHC, PCB,	Pb 1.5-2.0'
536A-0701-SB03	VOC, TPHC, PCB,	Pb 5.5-6.0'
536A-0701-SB04	VOC	14.0-14.5'

Boring No. 702

Geologic Log

0.0' - 1.0'	Asphalt
1.0' - 11.0'	Fill, sand and gravel, black, discolored, strong odor
11.0' - 12.0'	Sand and gravel, black to brown, trace of clay

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/9/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	6, 4, 6, 4	140 lb.	
2	5 ~ 7' bgs	17, 5, 3, 3	140 lb.	14 in.
3	10 - 12' bgs	10, 18, 17, 12	140 1ь.	22 in.

Sample ID No.	Analyses	Depth
536A-0702-SB01	TPHC	1.0-1.5'
536A-0702-SB02	VOC, TPHC, PCB,	Pb 1.5-2.0'
536A-0702-SB03	VOC, TPHC, PCB,	Pb 6.0-6.5'
536A-0702-SB04	VOC	. 11.0-11.5'

Boring No. 703

Geologic Log

0.0' - 1.0'	Asphalt
1.0' - 10.5'	Fill, sand and gravel, black to grey
10.5' - 13.5'	Sand and gravel, black to brown
13.5' - 15.0'	Clay, grey to brown

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/7/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Dep	oth	В	low	Coun	ts	Hammer	Recovery
1	1 -	3' bgs	8,	8,	5,	3	140 lb.	12 in.
2	5 –	7' bgs	1,	1,	1,	2	140 lb.	15 in.
3	13 - 1	l5' bgs	2,	3,	4,	1	140 lb.	19 in.

Sample ID No.	Analyses	Depth
536A-0703-SB01	TPHC	1.0-1.5'
536A-0703-SB02	VOC, TPHC, PCB, Pb	1.5-2.0'
536A-0703-SB03	VOC, TPHC, PCB, Pb	6.0-6.5'
536A-0703-SB04	VOC	13.0-13.5'

Boring No. 704

Geologic Log

0.0' - 1.0' Asphalt

1.0' - 9.0' Fill, sand and gravel, wood debris, black, odor

9.0' - 13.0' Sand and gravel, black to brown

13.0' - 15.0' Clay, grey, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/7/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	13 - 15' bgs	3. 7. 3. 2	140 lb.	20 in.

Sample ID No.	<u>Analyses</u>	<u>Depth</u>
536A-0704-SB01	VOC	13.0-13.5'

Boring No. 705

Geologic Log

0.0' - 1.0' Asphalt

1.0' - 10.0' Fill, sand, gravel, wood debris, discolored

9.0' - 13.0' Sand and gravel, black to brown

13.0' - 14.0' Clay, grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/7/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	12 - 14' bgs	5, 7, 3, 6	140 lb.	14 in.

Boring No. 706

Geologic Log

0.0' - 1.0'	Asphalt
1.0' - 10.0'	Fill, sand and gravel, brown to black
10.0' - 11.5'	Sand and gravel, black
11.5' - 12.0'	Clay, grey, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/8/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	8 - 10' bgs	3, 2, 1, 4	140 lb.	
2	10 ~ 12' bgs	10, 12, 11, 11	140 lb.	14 in.

Sample ID No.	Analyses	<u>Depth</u>
536A-0706-SB01	VOC	13.0-13.5'

Boring No. 707

Geologic Log

0.0' - 1.0'	Asphalt
1.0' - 10.5'	Fill, sand and gravel, black, discolored
10.5' - 13.0'	Sand and gravel, black to brown
13.0' - 14.0'	Clay, grey to red, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/8/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	10 - 12' bgs	2, 1, 1, 1	140 lb.	12 in.
2	10 - 12' bgs	21, 17, 12, 9	140 lb.	10 in.

Boring No. 708

Geologic Log

0.0' - 1.0'	Asphalt
1.0' - 11.0'	Fill, sand and gravel, black, discolored
11.0' - 13.5'	Sand and gravel, brown to black
13.5' - 14.0'	Clay, grey to red grey, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/8/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	10 - 12' bgs	12, 15, 2, 10	140 lb.	
2	12 - 14' bgs	3, 6, 10, 13	140 lb.	22 in.

Sample ID No.	Analyses	Depth
536A-0708-SB01	VOC	$\overline{13.0}$ – 13.5

Boring No. 801

Geologic Log

0.0' - 1.0'

Asphalt

1.0' - 5.0' Fill, sand and gravel, grey to black,

plastic and debris

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/2/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	15, 23, 24, 19	140 lb.	16 in.
2	3 - 5'bgs	8, 10, 12, 8	140 lb.	18 in.

Sample ID No.	<u>Analyses</u>	Depth
536A-0801-SB01	TPHC	1.0-1.5'
536A-0801-SB02	PP+40	1.5-2.0'
536A-0801-SB03	VOC	4.0-4.5'

Boring No. 901

Geologic Log

0.0' - 0.5' 0.5' - 7.0'

Asphalt

Fill, sand, black, silty, strong odor

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow_Counts	Hammer	Recovery
1	1 - 3' bgs	19, 13, 16, 8	140 lb.	6 in.
2	5 - 7' bgs	3, 2, 2, 2	140 lb.	24 in.

Sample ID No.	Analyses	Depth
536A-0901-SB01	TPHC	0.5-1.0'
536A-0901-SB02	PP+40	1.5-2.0'
536A-0901-SB03	VOC	5.0-5.5'

Boring No. 902

Geologic Log

0.0' - 0.5' 0.5' - 7.0' Asphalt

Fill, sand, black, silty, strong odor

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth_	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	19, 13, 16, 8	140 lb.	6 in.
2	5 - 7' bgs	3, 2, 2, 2	140 lb.	24 in.
	7 - 9' bgs	3, 3, 5, 5	140 1ъ.	14 in.

Sample ID No.	Analyses	Depth
536A-0902-SB01	VOC	1.5-2.0
536A-0902-SB02	VOC	7.5-8.0

Boring No. 903

Geologic Log

0.0' - 1.0

Asphalt

1.0' - 7.5'

Fill, sand black to brown, silty, wood fragments

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3 'bgs	15, 19, 15, 9	140 lb.	
2	5.5 - 7.5' bgs	5, 4, 4, 6	140 1ь.	24 in.

Sample ID No.	Analyses	Depth
536A-0903-SB01	VOC	1.5-2.0'
536A-0903-SB02	VOC	6.0-6.5'

Boring No. 904

Geologic Log

0.0' - 1.0' 1.0' - 7.0'

Asphalt

Fill, sand and gravel

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	6, 7, 10, 11	140 lb.	0 in.
2	5 - 7' bgs	5, 7, 8, 29	140 lb.	6 in.

Sample ID No.	Analyses	Depth
536A-0904-SB01	VOC	1.5-2.0'
536A-0904-SB02	VOC	6.0-6.5'

Boring No. 1001

Geologic Log

0.0' - 0.5'

Asphalt

0.5' - 2.0'

Fill, sand and gravel, grey

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	<u>Hammer</u>	Recovery
1	0.5 - 2.5' bgs	6, 7, 7, 5	140 lb.	16 in.

Sample ID No.	Analyses	Depth
536A-1001-SB01	TPHC	0.5-1.0'
536A-1001-SB02	VOC	1.5-2.0'

Boring No. 1002

Geologic Log

0.0' - 0.5 0.5' - 7.0'

Asphalt

Fill, sand and gravel, grey to black

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	5, 9, 11, 9	140 lb.	0 in.
2	5 - 7' bgs	2, 3, 3, 2	140 lb.	24 in.

Sample ID No.	Analyses	<u>De</u> pth
536A-1002-SB01	TPHC	0.5-1.0'
536A-1002-SB02	VOC	1.5-2.0'
536A-1002-SB03	TPHC	5.5-6.0'

Boring No. 1101

Geologic Log

0.0' - 0.5'

Asphalt

6.5' - 7.0'

Fill, sand, brown, fine, well sorted

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	5 - 7' bgs	5, 7, 9, 8	140 lb.	20 in.

Sample ID No.	Analyses	Depth
536A-1101-SB01	TPHC	0.5-1.0'
536A-1101-SB02	PP+40	1.5-2.0'
536A-1101-SB03	VOC	6.0-6.5'

Boring No. 1102

Geologic Log

0.5' - 7.0'

0.0' - 0.5'

Asphalt

Coal slag, black, coarse

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	5 - 7' bgs	9, 3, 23, 18	140 lb.	20 in.

Sample ID No.	<u>Analyses</u>	Depth
536A-1102-SB01	VOC	1.5-2.0'
536A-1102-SB02	VOC	6.0-6.5'

Boring No. 1103

Geologic Log

0.0' - 0.5'

Asphalt

0.5' - 6.5'

Sand, brown to grey, medium to fine

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/6/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	5 - 7' bgs	7, 9, 10, 3	140 lb.	16 in.

Sample ID No.	Analyses	Depth
536A-1103-SB01	VOC	1.5-2.0
536A-1103-SB02	VOC	6.0-6.5'

Boring No. 1301

Geologic Log

0.0' - 0.5'

Soil, dark brown

0.5' - 2.0'

Sand, dark brown to black discolored

Drilling Specifications

Drilling Method: Hand Auger Drilling Company: ENVIRON

Date Drilled: 8/30/88

Plugging Material: Cuttings

Samples Collected

Sample ID No. 536A-1301-SB01

Analyses VOC Depth 1.5-2.0'

Boring No. 1302

Geologic Log

0.0' - 1.0'	Asphalt
1.0' - 7.0'	Fill, sand and gravel, black, discolored, strong odor
7.0' - 9.0'	Sand and gravel, black to brown, trace of clay

<u>Drilling Specifications</u>

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/2/88 Plugging Material: Cement

Split Spoons

Split Spoon No.		D	epth	Blow Counts	Hammer	Recovery
1	1	_	3' bgs	17, 21, 15, 9	140 lb.	12 in.
2	3	_	5' bgs	7, 10, 3, 2	140 lb.	12 in.
3	5	_	7' bgs	6, 8, 5, 4	140 lb.	12 in.
4	7	_	9' bgs	5, 6, 2, 2	140 lb.	16 in.
5	9	-	11' bgs	8, 7, 4, 4	140 lb.	0 in.

Sample ID No.	Analyses	Depth
536A-1302-SB01	TPHC	1.0-1.5
536A-1302-SB02	VOC, TPHC, PCB	2.0-2.5
536A-1302-SB03	TPHC, PCB, VOC	3.5-4.0'
536A-1302-SB04	TPHC, PCB	7.0-7.51

Boring No. 1401

Geologic Log

0.0' - 1.0' 1.0' - 5.0'

Asphalt

Fill, sand, brown to black, silty

Drilling Specifications

Drilling Method: Hollow Stem Auger

Rig: Track

Drilling Company: J. E. Fritts

Date Drilled: 9/2/88 Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	1 - 3' bgs	7, 13, 12, 10	140 lb.	18 in.
2	3 - 5' bgs	5, 7, 10, 8	140 lb.	16 in.

Sample ID No.	<u>Analyses</u>	<u>Depth</u>
536A-1401-SB01	TPHC, PCB	1.0-1.5'
536A-1401-SB02	VOC, TPHC, PCB	1.5-2.0'
536A-1401-SB03	VOC, TPHC, PCB	4.0-4.5'

Boring No. 1303

Geologic Log

0.0' - 0.5'

Soil

0.5' - 2.0'

sand, dark brown to black

Drilling Specifications

Drilling Method: Hand Auger Drilling Company: ENVIRON

Date Drilled: 8/30/88

Plugging Material: Cuttings

Sample ID No.	Analyses	Depth
536A-1303-SB01	TPHC	0.5-1.0'
536A-1303-SB02	VOC, TPHC, PCB	1.5-2.0'

Boring No. 1506

Geologic Log

0.0' - 0.5'	Top soil
0.5' - 5.0'	Sand, brown, well sorted
5.0' - 8.5'	Sand and gravel, brown
8.5' - 10.0'	Clay, grey, silty

Drilling Specifications

Drilling Method: Hand Auger and Hollow Stem Auger

Rig: Skid Rig

Drilling Company: ENVIRON and J. E. Fritts

Date Drilled: 8/30/88
Plugging Material: Cement

Split Spoons

Split Spoon No.	Depth	Blow Counts	Hammer	Recovery
1	8 - 10' bgs	7, 9, 10, 6	140 lb.	20 in.

Sample ID No.	Analyses	<u>Depth</u>
536A-1506-SB01	TPHC	0.5-1.0'
536A-1506-SB02	VOC, TPHC, PCB	1.5-2.0'
536A-1506-SB03	TPHC, PCB	4.5-5.0'
536A-1506-SB04	TPHC, PCB	8.0-8.5'